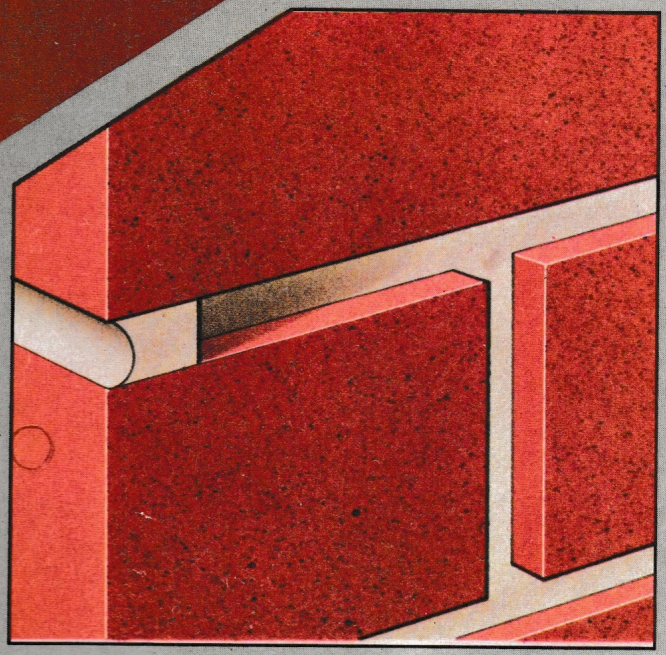
A Marshall Cavendish Publication in weekly parts

Part 21

THE KNACK

The complete manual of DIY skills, projects and home ideas



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THE KNACK

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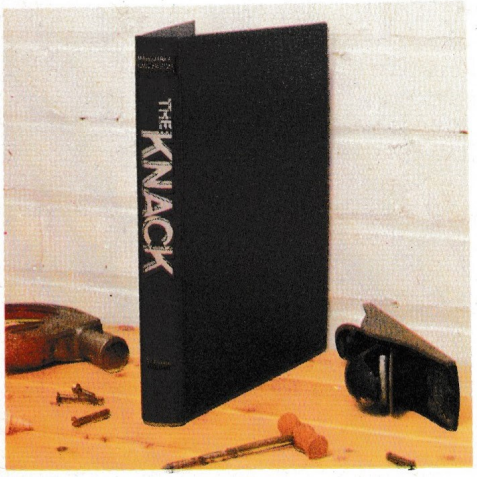

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Planning a child's bedroom

Susan Griggs

Above: *This neat solution to the problems of a very small bedroom still provides plenty of privacy and desk space for each child. A completely symmetrical arrangement divides the bedroom fairly*

Children's and teenagers' rooms need to be multi-purpose and flexible. Careful planning is necessary to pack in all the beds, desks and cupboards they need

Two things make designing children's bedrooms different from designing other rooms in the house. The first is that while children come in all shapes and sizes, they never stay the same for long. The second is that children do all kinds of things in their bedrooms—the least problematic of which is sleeping.

Children's bedrooms need to be infinitely-adaptable, multi-function living spaces. And no room can ever satisfy these requirements unless a great deal of imagination goes into its design. This means planning with foresight, as well as carefully, selecting the furniture, fittings, fabrics and materials for the room.

Which room?

If you are fortunate enough to be starting from scratch, either with a new-born baby, or a new house, think carefully before choosing the room. Make sure it is big enough for the child: a small bedroom may be suitable for a baby, but beyond the age of two, children need space to play. As they grow older they need space to entertain friends and ultimately somewhere to indulge their interests and do their homework.

Few of us have enough overall space to provide separate rooms for such activities, we must make the most of the bedroom itself. The longer it is, the more versatile you can make it. And the more that children can be encouraged to do in their rooms, the less the rest of the house will be cluttered up with their toys, their friends and their noise.

Safety is an important consideration. For example, a bedroom with low window sills may be potentially hazardous for small children. And since toddlers barely able to walk are notoriously able when it comes to climbing, you should think about installing some means of preventing the child from climbing out. Vertical wooden bars are a good idea and are easy to make up.

Window latches should always be checked for security, and electric and

heating appliances for safety. Free standing heaters and any electric, gas or paraffin heater which has an exposed element, even if it is barred, can be highly dangerous and should be replaced. For absolute safety use fully enclosed radiators or perhaps a convector heater.

Wall and floor coverings

Children of all ages need hardwearing floor and wall coverings. Mud, watercolours, pencil drawings, glue, even food, may all find their way on to the walls and floor of the bedroom, so washable products are a must. It is usually a good idea to decide on the type of coverings you want well before you consider the actual decoration.

Buying a carpet in a roll is not necessarily the best choice. Carpet tiles are easier to lay and can be replaced if one or two get completely ruined or particularly worn. Bear in mind though that after a year or two of constant use, the carpet overall may have lost some of its original colour and texture, and that replacement tiles may be a poor match.

Other good alternatives for a tough, clean floor covering are cork tiles or one of the many varieties of vinyl floorings. Entirely washable and largely stain resistant, they are attractive and hardwearing although perhaps a little uncomfortable for bare feet on a cold morning.

The variety of patterns available in vinyl floorings is enormous and you can add a few soft rugs to give comfort to bare feet.

Wall coverings, too, require careful consideration since both wallpaper and emulsion paints have their good and bad points. A busy wallpaper, for example, may conceal some of the graffiti which a child might inflict on the walls but could work out expensive. Emulsion paints are much cheaper and if you buy a vinyl matt, silk or satin finish, you can be sure it is washable and will paint over any offending marks which may appear.

Whatever paint you use, make sure it is not toxic especially if the room is for a small child. Teething toddlers have been known to chew lead painted window ledges with unhappy results.

Lighting

If the child's bedroom is to be a real living space, the lighting in it needs to be given as much thought as any of the other fittings. For small children, remember that free standing bedside lamps with trailing wires can be hazardous. It is better to install a wall or ceiling fitting with a ceiling-mounted pull switch for safety.

Above: *Not only does this classic space saving idea provide a comfortable bed space, it creates a cosy work and storage area under the bed*

For young children who will only sleep with night lights there are numerous low-light lamps available set in fairy-tale pottery cottages or owls. But you might consider the alternative of using a dimmer switch on the main light.

An older child's bedroom, which is designed for specific uses, perhaps for reading or homework, would certainly benefit from the clever use of spotlights. These are available in all kinds of combinations, from singles to clusters, as wall or ceiling fittings, table lights and on ceiling tracks. Spotlights give you the great advantage of being able to direct the light as you wish, picking out particular areas or even, in a teenager's bedroom, creating two distinct spaces—one for sleeping, one for living.

Furniture and fittings

Before turning to the decorative styles and colours in the bedroom, give some thought to the fittings and fixtures. This is where the greatest difference between children's rooms in the house becomes apparent.

Although small children do not need tall wardrobes or big beds, beware of buying or building furniture which will have only limited use. Think ahead to the child's likely needs in the future. If your children are teenagers, consider other uses for the bedroom, and the furniture you will need when they eventually leave to set up their own homes.

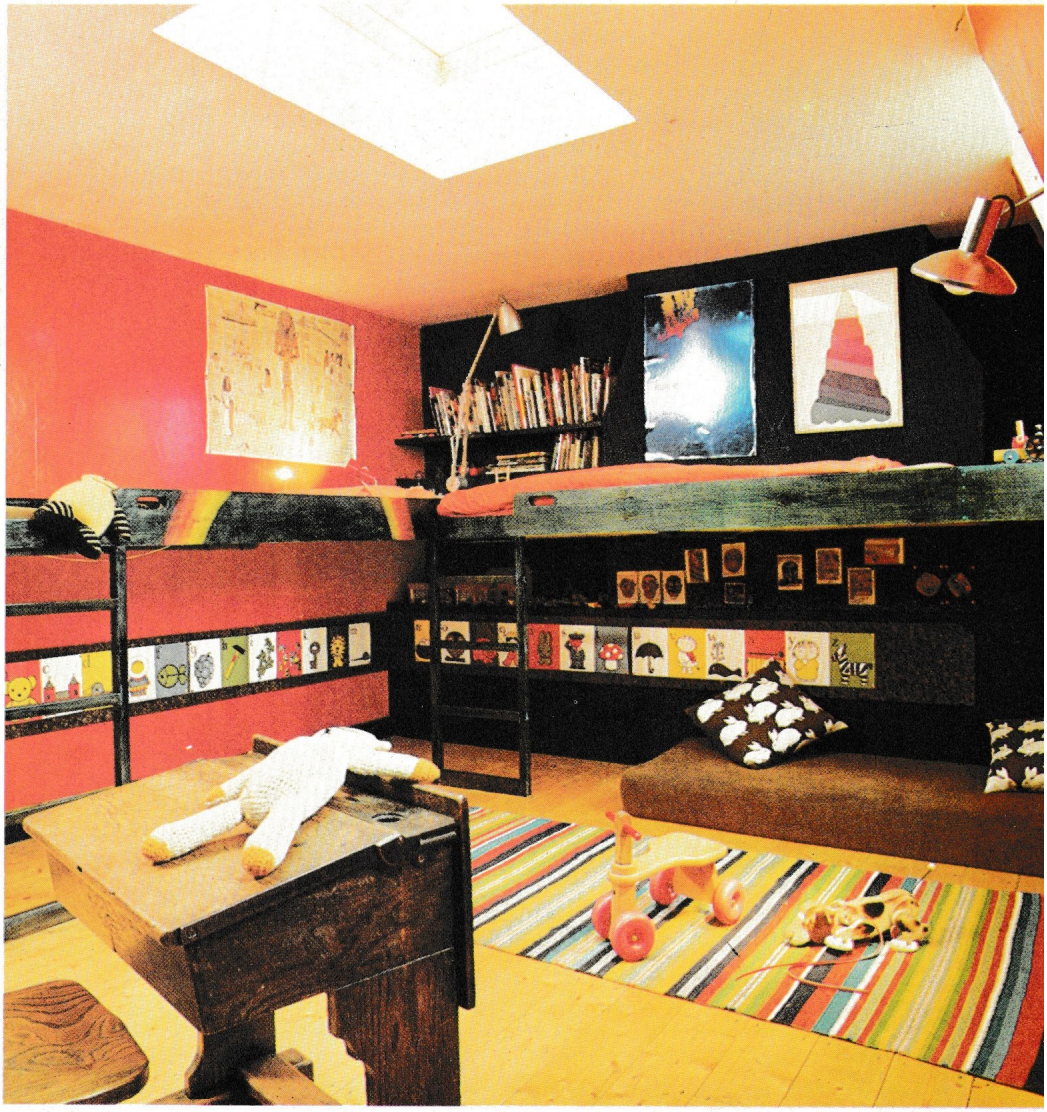
With space at such a premium in most family houses, whatever your children's ages you should consider the value of space-saving beds and

Syndication International

Design Council

Above: *Extra space has been created in this bedroom by using the space beneath the bed for some of the storage units*

Below: *The platform bed idea has been used here to make extra play space and the polished, stripped floor-boards are toddler-proof*



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cupboards, chests and wardrobes. In recent years manufacturers have become increasingly inventive and design conscious with bedroom fittings. Even if you have to deal with awkward shapes in the bedroom and plan to do the carpentry yourself, it is still worth looking at the sort of modern furniture available for ideas.

Beds and bunks

Once a child leaves its cot and you have to consider buying a bed, look at the alternatives to normal divans. For example, many beds now come equipped with storage drawers underneath. Others are designed to fold away, either vertically or horizontally, against a wall and there are many which double up as settees. All add something to the room as well as serving a practical sleeping function and give you plenty of scope for creative design.

Foldaway beds are particularly use-

ful in small rooms—even the bedding is strapped down to fold away along with the bed. They can fold into cupboards which you can buy or make yourself. Either way you end up with more floor space for children to play on during the day and the chance to incorporate the bed in one neat unit which does not dominate the room.

Settee beds are less flexible and perhaps more suitable for older children or teenagers who intend using their rooms as bed-sitters and for entertaining their friends.

Two children can easily be accommodated in the same bedroom without any loss of floor space simply by using bunk beds. Again, there are fold-away types available which can be fixed to a wall. And some can be installed at right-angles to each other so that you can fit a desk underneath the top bunk and storage drawers beneath the lower one.

When children outgrow the arrangement most bunks can be separated and used as free-standing beds. Plenty of attractive finishes are available, whether the construction is of tubular steel, natural or veneered wood.

As with any other piece of furniture, making your own enables you to incorporate it into a neat unit. But if buying, check that the bunks are really stable and have lockable safety catches to prevent accidents. Fixed ladders are generally safer than removable ones, if only because children can use ladders to reach all kinds of dangerous upper levels.

Storage

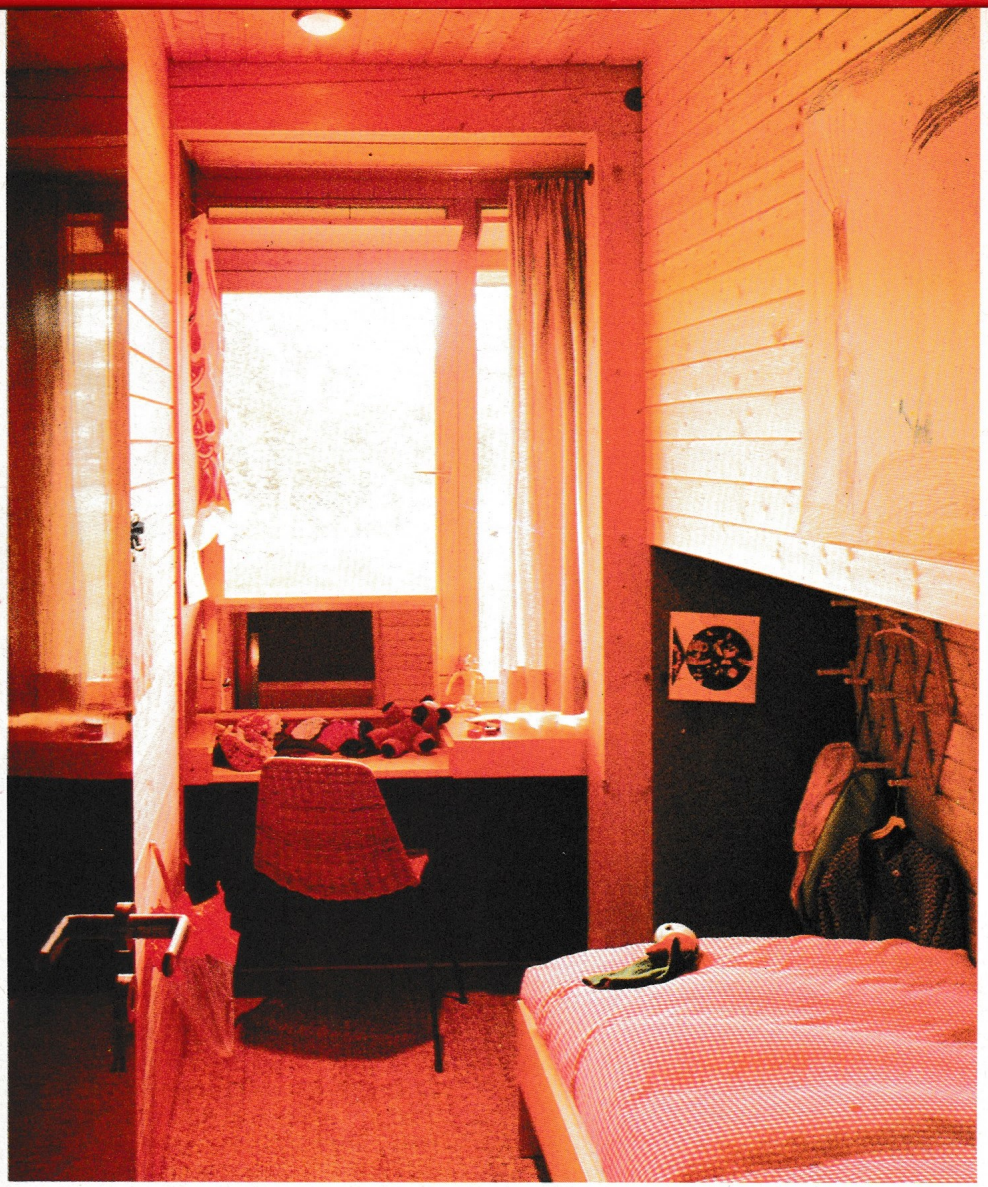
Creating a flexible and roomy living space for children of all ages means storing away as much of their paraphernalia as possible in well-planned cupboards, shelves and wardrobes. The necessities can be simply summed up as hanging and drawer space for clothes, shelf space for books, storage space for toys, and work surfaces for anything from nursery equipment to homework and hobbies.

The largest item is usually the wardrobe and, unless you already have fitted wardrobes, it is worth thinking about buying or building a unit which incorporates adjoining shelves and drawers as well as providing hanging space for clothes. Some units are designed to include a work-surface and drawers set between two hanging spaces. This could be a play surface for toddlers, perhaps with a wipe-clean surround, be used as a dressing table with a mirror above, or as a desk for older children. And later on, the surface could be adapted to house a TV in what might become a spare bedroom or guest room.

Perhaps the most versatile system is a combination unit containing cupboards, hanging space, drawers, work surface and space for a bed spanned over an entire wall. Doors conceal everything to give the whole room a

Below: *A teenager's room needs a sofa, a desk and plenty of cupboard space for books, clothes, sports equipment and, of course, hi-fi and TV*

Design Council



Brecht Einzig Limited

Above: *This is, in fact, only one half of a bigger room. The divider has been constructed as a platform for the bed next door and a ceiling for the bed shown*

completely uncluttered appearance.

This type of unit is easy to build yourself since all that is required is a series of frameworks for doors behind which you fit the various items you need: it is not even necessary to fit everything at once. You can use space above the bed for shelves, in which case the whole unit takes on the appearance of a studio system.

Although it is perfectly possible to include a drawer unit in a wall-to-wall system, your room may be unsuitable or you may wish to instal a separate chest of drawers. If so, it is easy to combine a work surface with a chest simply by running a surface over the chest up to a wall—creating a desk or dressing table in the process. A pair of chests could be joined in this way too.

As for the units themselves, think about whitewood chests which can be painted or varnished, or a melamine-coated chest: both are relatively cheap to buy.

Incorporating one unit with another is not the only way of creating an attractive, well-designed storage system. Today, many manufacturers produce modular storage units which make an infinitely flexible system and can be added to at any time. By simply rearranging the modules, you can alter the appearance of the room or even create a semi-partition.

Stacking units, some with drawers, some with shelves and others with doors, give a room a modern look without any loss of useful storage space. You could build your own and even include modules which double as seating units and include storage space underneath.

Finally you might consider installing a shower or wash basin. An alcove would be ideal for this since all you have to think about is plumbing in a cold water supply, a waste outlet, an electricity supply and then tiling the walls and a shower tray. The front can be closed off with a curtain or even a cupboard door. The long-term benefits of this type of installation are obvious and even if a suitable location is not immediately apparent, you can usually include a shower in a space no larger than a single wardrobe.

Decoration

How you decorate a child's bedroom is very much a matter of your own taste, your child's age and of course his or her tastes. If you go for a patterned wallpaper, however, you actually pre-empt most other decisions affecting the decoration of the room. With painted walls, you give yourself a great deal more flexibility and the opportunity to add little touches of interest elsewhere.

While soft, pastel shades are generally thought to be appealing to babies, during waking hours the child might appreciate some decorative effects on the ceiling. Thus you might continue a decorative patterned wallpaper across the ceiling or perhaps use stencils to create colourful motifs or cartoon characters.

It is possible also to buy transfers which stick to any hard surface and these can add to the fun effects. Even windows can be embellished in this way, or with paper cut-outs to add an extra dimension, particularly if you are artistic and can create the shapes yourself.

The range of accessories now available with children's characters or patterns on them is enormous and will add real excitement to a room which is otherwise fairly plain.

Once beyond the baby stage, children tend to appreciate the attractions of more dramatic colours. The primary colours of red, blue, green and yellow have the effect of brightening a room's interior and creating a more stimulating visual environment for the growing child. Nevertheless, the child will probably experiment with his or her own paint box so be prepared for regular washdowns.

In a small room, it is important to keep the colour scheme simple. Although children will appreciate almost any colour, too many contrasts give the room a cluttered appearance. Once you have chosen one main colour for the walls, it is often worth picking out certain details in the woodwork in that same colour but using gloss paint.

Naturally the furniture you choose for the room should also be painted to blend with the other colours, although again you might use contrasting colours for drawer fronts

and surrounds, or paint all the doors in the room one colour and all the frames another.

Using paint on the walls offers you plenty of opportunity to exercise your imagination. Rainbow effects might be used on an otherwise plain wall, or a freize of all the primary colours to lower the apparent height of the ceiling. Many older houses still have cornices and picture rails which can be picked out in strongly contrasting colours, so be adventurous. Even a simple mirror on the wall can be surrounded by a painted pattern or scroll to enhance its overall appearance.

With wallpapers, remember that busy patterns tend to reduce the size of the room: while the effect may be attractive, it may also be rather overpowering and claustrophobic.

Think about the size of the pattern. Large patterns may look good on large expanses of wall, but entirely out of place in a small bedroom. Conversely, papers with tiny patterns tend to merge into a single colour effect on a large expanse.

One of the great advantages of modern wallpapers is that you can often buy matching fabrics. In children's rooms this can be especially effective when you are using a paper with a distinctive children's character. Bedspreads, sheets, quilt covers, curtains and blinds can all match, and the effect can even be continued onto some of the furniture using wallpaper on cupboard doors for example.

Familiar TV characters, particularly suitable for young children, now appear on many wallpapers giving visual expression to the crazes of the moment. Indeed, this kind of personalizing now extends to the whole range of accessories for the bedroom, including lampshades, wastebins and clocks as well as towels, mattresses, bedcovers, curtains and blinds.

Your child's enthusiasm for anything from science fiction to horses can be reflected also in wall and door murals. And manufacturers have been quick to come up with complementary designs for quilt covers, some of which are reversible with children's characters on one side and abstract designs on the other in case you want to use the cover for a teenager's or guest room at a later date.

By the time they are teenagers, the children will be ready to decorate their own rooms and most parents will find their tastes bizarre in the extreme. But if nothing else the room will at least have proved that it is easily adaptable.

A rug with a difference

Simon Butcher

This attractive rug will provide hours of fun and games. You can make it in an afternoon from a few odds and ends of carpet tiles and a roll of carpet tape

Children's rooms are never easy to organize. Most children seem to like nothing better than sprawling out on the floor to play with their toys or games—so why not make things easy for them with a purpose-built games rug made from carpet tiles. This will protect the flooring from the worst of the wear, and looks neat even when it is not being used.

This design is for a simple chequerboard which can be used for draughts or chess. A design like this is easy to make, since all the shapes are simple squares—but there is no reason why you should not use the idea to make the board for a child's favourite game—ludo or backgammon for example. Simply copy the board from a games set. You will find it is quite easy to work out how to cut up the pieces if you draw out a design on squared paper, so that each square represents a carpet tile.

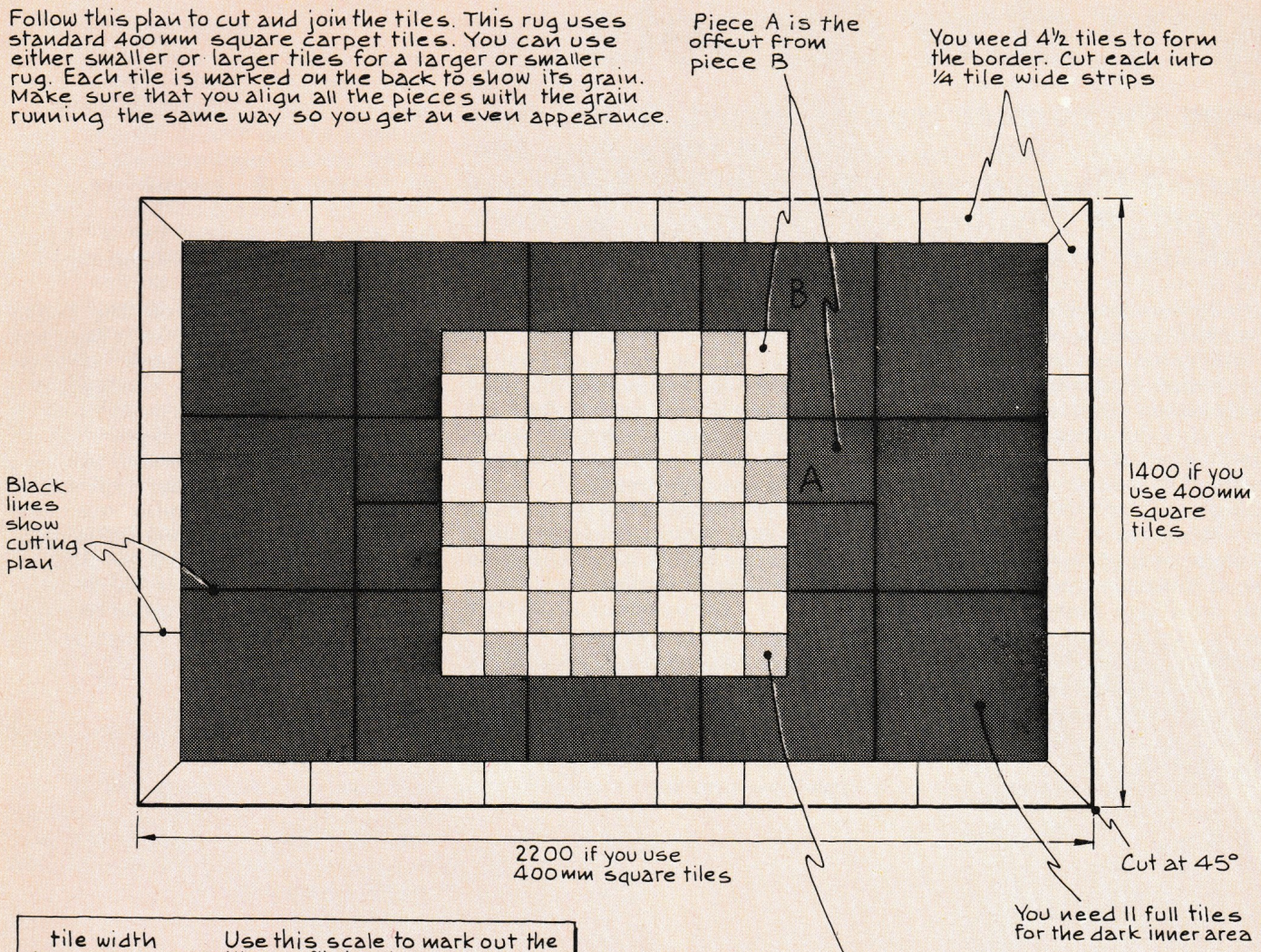
The chequerboard shown is by far the easiest to make, since you can make up all the shapes you need simply by dividing the size of a full tile in half or into four. You will need 20 tiles in all including the area to sit on, and the decorative border. The board itself takes four tiles, two of each colour. The surround takes 11 tiles. You will need five more tiles for the border, but this can be omitted if desired. It may well be possible to use left over tiles. In any case, you should make sure that they are all the same size. The design gives dimensions for a rug using 400mm square tiles, but you could easily use a different size for a larger or smaller rug.

Mark out and cut the tiles carefully for an accurate result. Carpet has a grain, that is, its pile runs in a particular direction. For an even effect, you should mark the back of each piece so that you can line them all up the same way.

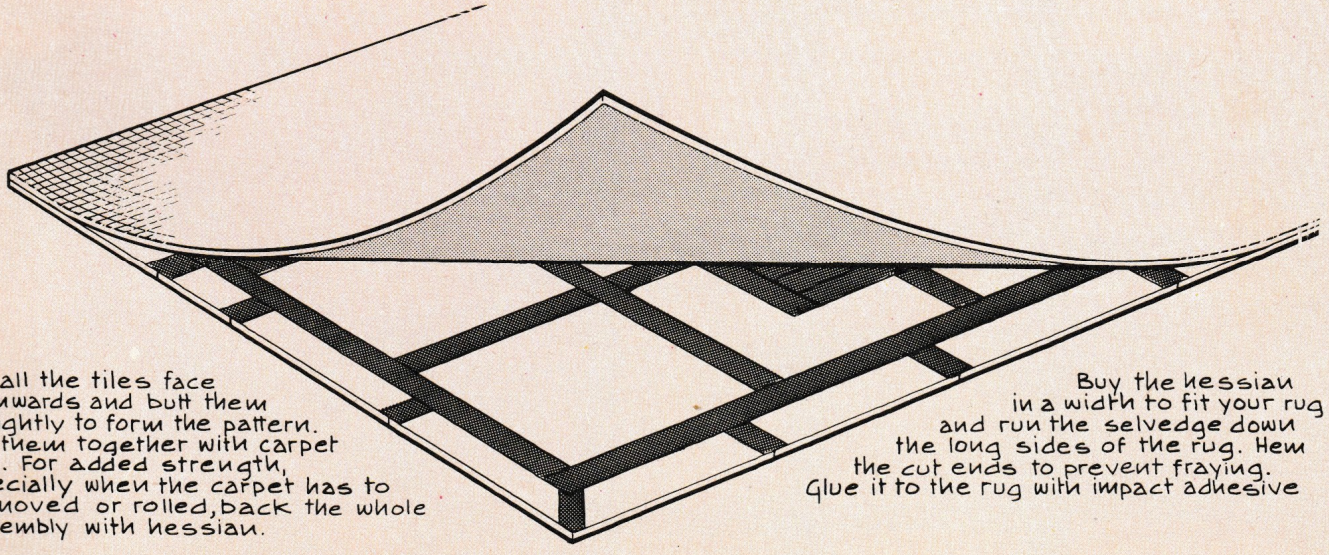
Assemble the rug upside-down on a flat surface. Butt each piece tightly against its neighbours and secure it temporarily with carpet tape. For extra strength, you should back the whole rug with a piece of hessian cut to size, hemmed and glued in place with impact adhesive.

Playing pieces can be anything you like—toys, coffee jar tops, or even circles cut out from a few spare carpet tiles.

Follow this plan to cut and join the tiles. This rug uses standard 400 mm square carpet tiles. You can use either smaller or larger tiles for a larger or smaller rug. Each tile is marked on the back to show its grain. Make sure that you align all the pieces with the grain running the same way so you get an even appearance.


Piece A is the offcut from piece B
You need 4½ tiles to form the border. Cut each into ¼ tile wide strips
B
A
Black lines show cutting plan
1400 if you use 400mm square tiles
2200 if you use 400mm square tiles
Cut at 45°
You need 11 full tiles for the dark inner area
Chequerboard starts with dark square at the corner on each players left. You need 4 full tiles (2 in each colour). Cut each individual square ¼ tile square

tile width	Use this scale to mark out the tiles to fit the plan above. All the shapes shown are based on exact fractions of a full tile. Mark each tile accurately on the back and cut using a steel straightedge and a sharp knife
½ tile width	
¼ tile width	



Lay all the tiles face downwards and butt them up tightly to form the pattern. Join them together with carpet tape. For added strength, especially when the carpet has to be moved or rolled, back the whole assembly with hessian.

Buy the hessian in a width to fit your rug and run the selvedge down the long sides of the rug. Hem the cut ends to prevent fraying. Glue it to the rug with impact adhesive

Advertising Arts

Laying stair carpets

Choosing the correct type of carpet ● Measuring how much carpet is needed ● Preparing the staircase ● Fixing devices ● Underlay ● Fitting the carpet ● Dealing with landings, winders and bullnose steps

Two or three decades ago, most stair carpets consisted simply of a bordered runner laid down the centre of the stairs and secured with clips or rods. But nearly every modern staircase calls for a close-fitted carpet, neatly fixed with concealed, gripper-type fittings under the carpet.

Providing you plan it carefully and set about things in a logical order, fitting a stair carpet is not as difficult as it seems. Normally the only equipment you need is a blunt bolster, a handyman's knife with plenty of blades, a large pair of scissors and a metal straightedge. Where a winding staircase is involved, you might also require a carpet stretcher or 'knee kicker' (see pages 250-253).

If you are fitting hall and landing carpets at the same time, lay the stair carpet after the hall but before the landing. This ensures that the various sections of carpet overlap neatly and safely with one another.

Remember, too, that the slope of the pile must face down the stairs otherwise the carpet may wear prematurely and prove difficult to clean.

Choosing a stair carpet

Take plenty of time over choosing a stair carpet: stairs, after all, are subjected to more concentrated wear than any other part of the house.

Carpet manufacturers use grading systems based on the resistance of a carpet to wear to help their customers. In the UK, the British Carpet Mark is the system employed and grade 4 is the one recommended for stairs which get normal use. Grade 5 might be more appropriate for a carpet which has to take above-average wear in any home.

Beware of relying on the grade number alone however, as it does not specifically refer to stair carpets. Sculptured carpets, for example, are unsuitable because they tend to 'grin' —the backing becomes exposed where the carpet bends over the stair nosings.

Shag piles are another type prone to grinning and will also wear out quickly. Corded or loop piles look effective but tend to have too slippery a surface for the stairs. And foam-backed carpets are less suited to stairs than other areas, though many people are tempted by their low cost.

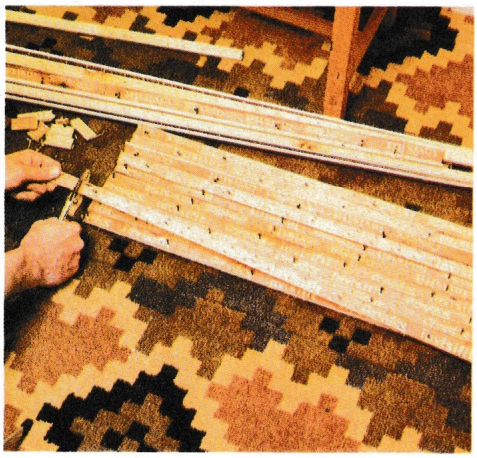
Preparation

To give your new stair carpet the best possible start, it is important to make sure that the staircase is smooth, undamaged and firm. Start by removing any protruding nails or screws and at the same time, take up any old carpet fittings (fig. 1).

Below: *A patterned carpet can look attractive on a staircase but the design must be matched carefully. On the winders make sure the design follows the stairs as they bend*

Carpet supplied by John Crossley & Sons Ltd

1 *Remove any loose fittings and nails. Fill in any cracks in the staircase with filler and smooth down with sandpaper*



2 *Cut the grippers with secateurs. Line them up against a wall so that they can be cut to the same length for the main steps*

3 *Nail one strip across the riser 20mm up from the tread and the second strip across the tread 20mm away from the riser*

4 *Longer strips should be cut for the winders. On large winders grippers can be fitted all around each of the treads*

If some of the stair nosings are damaged, glue and screw replacements firmly in position (see pages 328-333). Secure creaking treads to the risers with adhesive and screws, remembering that all screws must be countersunk below the level of the surrounding surface.

Stairs or any other wooden surfaces which have been treated with anti-woodworm fluid should not be carpeted for six months after the compound was last applied: the fumes given off can damage and distort carpet backings. If you cannot wait this long, lay down a protective polythene membrane after about six weeks and then a thick foam underlay.

Measuring up

Because most staircases are a little under 910mm wide in the UK a standard 910mm carpet, reduced slightly is usually ideal. If this width is not enough, or is unavailable, you can cut stair carpet from standard broadloom. Indeed, this is often more economical where you are fitting matching hall and landing carpets at the same time.

Before you start measuring, establish where the landing carpet ends and the stair carpet begins. The landing carpet must come right over the nosing of the top stair and down to the bottom of the riser. The stair carpet then meets it at the junction of the riser and the tread. This gives you a concealed join which is not vulnerable to wear.

Overall length: Because stair pads or underlay effectively increase the height of each step, you should make an allowance of 25mm per step when you measure for overall length. If the stairs are straight, without winders and cut-outs for the newel posts, allow a further half metre for shifting of the tread—this will help to distribute the concentrated wear on the nosing area.

Winding stairs: These should be measured for length along the outside edge of any twists and curves—the longest side. Measure the width at the widest point, bearing in mind that the carpet will be laid square to each nosing. Covering for the winding part of each step must then be cut from a separate piece of carpet (fig. C).

Patterned carpet: The design of a patterned carpet should be centralized within the width of the stairs. This could involve cutting both sides of the carpet when you reduce its width to fit. If matching landing and hall carpets are being laid, their patterns should line up with that on the stairs.

Bullnose step: This is the laterally rounded type of step sometimes found at the bottom of a staircase. Because of the curve, you must measure for two separate pieces of carpet: one for the tread, allowing enough to tuck under the nosing, and one to wrap around the riser (fig. D).

Fixing devices

As stair carpets in runner form have virtually disappeared, so have the traditional rods and clips used to fix them. They have been superceded by concealed, prenailed, gripper-type fixings. Two strips of these are required for each step and you should handle

Cold carpets in cold rooms are stiff and very hard to work with. If you stand the roll of carpet in a warm place for a few hours and turn up the heating in the staircase area, the carpet will be easier to handle. And not only is a warm carpet easier to work with, it is also less likely to stretch after fitting.

5 *Cut the underlay with a sharp scissors or knife. It can be fixed with tacks or a heavy-duty staple gun to the stair*

6 *Cut and fix the underlay working from the top of the staircase. Fit it from the gripper on the tread to the one on the riser*

7 *You can judge how much carpet is needed by running a piece of string from the top to the bottom of the staircase*

them with care as the pins are very sharp. Use garden secateurs to cut the strips 6mm narrower than the width of the stairs, so that they fit comfortably into place with a small clearance on each side (fig. 2).

The strips are fixed with ready-started ring shank pre-nails. Nail the first strip across the riser 20mm up from the tread with the pins sloping downwards (fig. 3). Secure the second strip across the tread 20mm away from the riser with the gripper pins sloping towards the latter (fig. 3). For very stiff carpets, increase the 20mm distance to 25mm.

Short strips of waste gripper can be used side by side to make up the appropriate lengths but if you do this, use a few extra pre-nails.

Foam-backed carpets: As mentioned above, these are not entirely suitable for staircases. If you must use foam-backed carpet, there are a number of patented fixing devices available for securing it to the stairs—though these generally cause as many problems as they solve. The generally accepted (and simplest) method for the DIY enthusiast is to tighten the carpet into line between each tread and riser with a blunt bolster and then secure it with 25mm carpet tacks.

The underlay

Having the correct underlay is just as important as having the right type of carpet. A good underlay increases the lifespan of any carpet and this is especially true on stairs.

Avoid low-quality, cheap underlays and those with a very open, cellular construction. The best types are crumb rubber, quality felt, felt/crumb rubber combination and bonded felt.

8 *Cut the carpet through the backing with a handyman's knife. Allow a fine expansion gap down each side of the carpet*

9 *Seal the edges of the carpet with a latex compound and allow it to dry before laying. This prevents the carpet fraying*

10 *Drive the carpet into the junction between the grippers using a blunt bolster and hammer. Take care not to split it*

11 *Cut a separate piece of carpet to fit each of the winders. One piece should be cut for each riser and tread*

Underlays are made in 1.37m widths (1.22 and 1.83m widths in Australia) and they can be cut from any direction. Combination underlays must be laid felt side up, and rubber underlays with the backing materials on the top. As with the gripper, cut underlay a little narrower than the stair width to leave a very small clearance.

Cut separate pads for each step. These must start on the tread, fitting tightly up to the gripper and extend right down over the nosing to meet the gripper on the riser (fig. 6). A little extra underlay is taken up in the length as the pad bends over the nosing, so allow for this when cutting. Skimping on the size of the pads could result in premature wear on the nosing.

Underlays can be cut into pads with large sharp scissors or a sharp handyman's knife, using a thin metal straightedge as a guide.

Secure the pads in position with plenty of fixings close to where they meet the grippers—use 18mm tacks or a heavy-duty staple gun (fig. 5) to ensure a solid fixing.

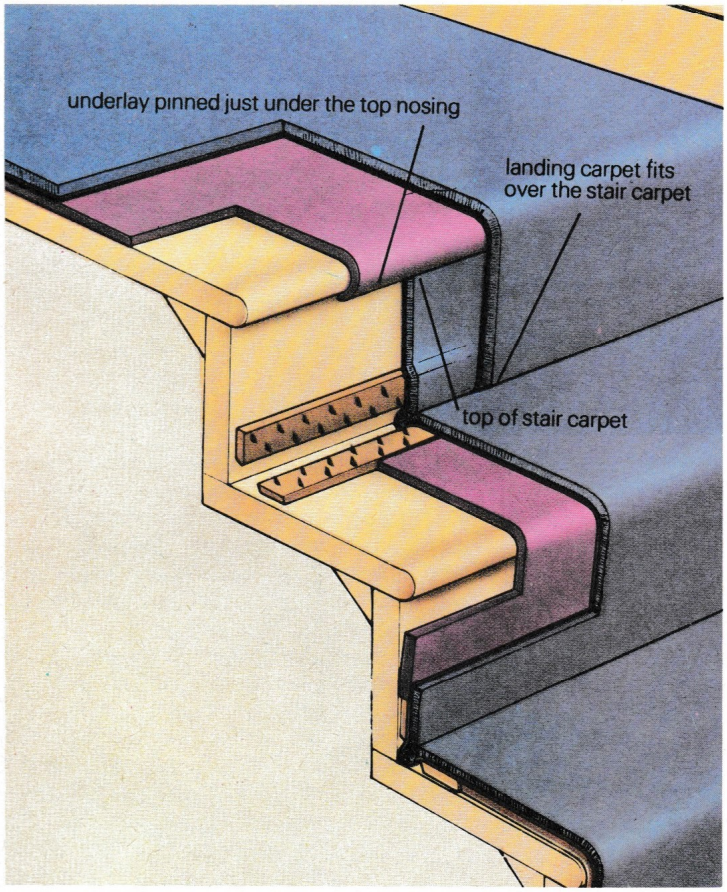
Fitting the carpet

Cut the carpet to fit the width of the stairs, allowing a very fine expansion gap each side; this must be small enough to be concealed by the overhanging pile. To cut the carpet, mark off the width on the back and cut through the backing with a handyman's knife—using the straightedge as a guide. By cutting the carpet from the back, and only just through the backing, you avoid cutting off the overhanging pile (fig. 8).

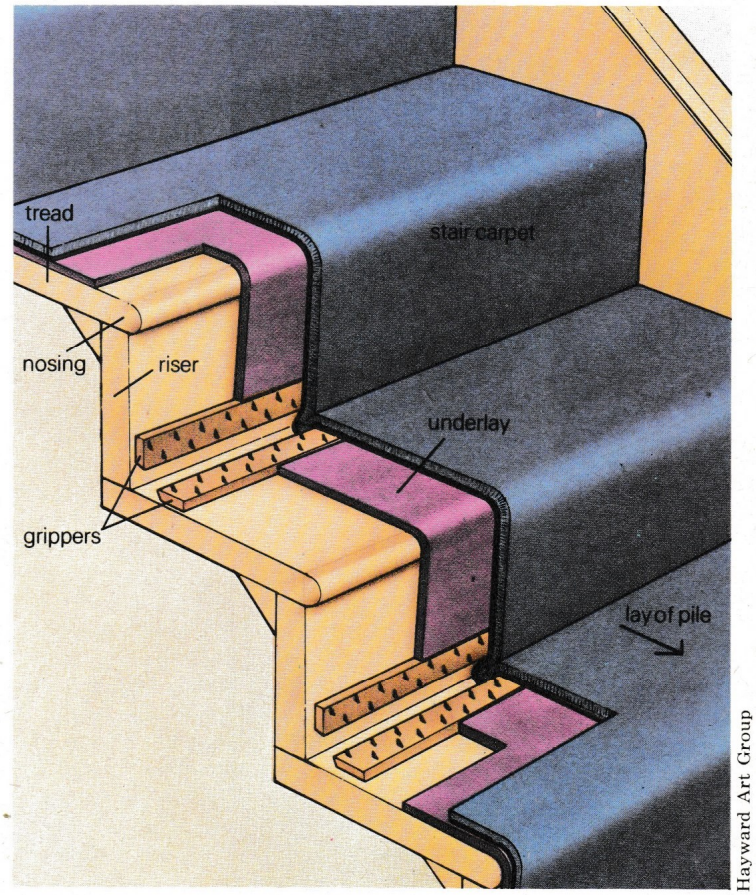
If you are working with an Axminster or a Wilton which frays when cut, you must seal the raw edges with

12 *Some of the treads on large winders need pieces added to them. Use carpet tape coated liberally with latex compound*

13 *The landing carpet should be laid over the top of the stair carpet and tacked to fit to the bottom of the top riser*



A. *Notice that the landing underlay is tacked just under the nosing of the top step. The landing carpet is then laid over the top of the stair carpet. Given the choice, always lay a stair carpet before the landing*



B. *Nail the grippers so that the spikes face inwards towards each other. Do not place the grippers too close to one another as this will tear the carpet when it is hammered home*

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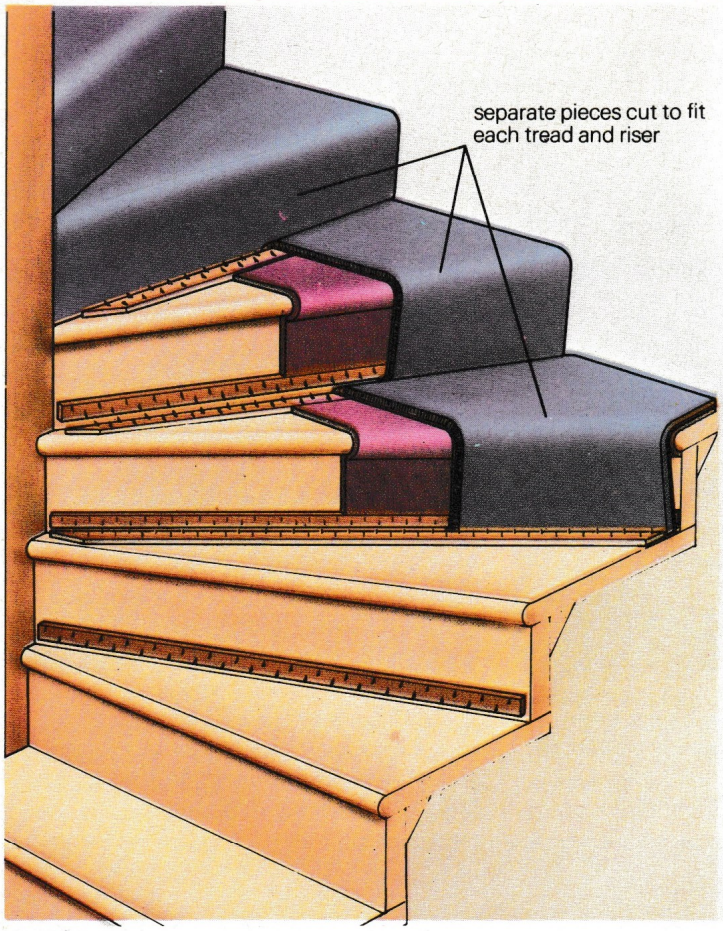

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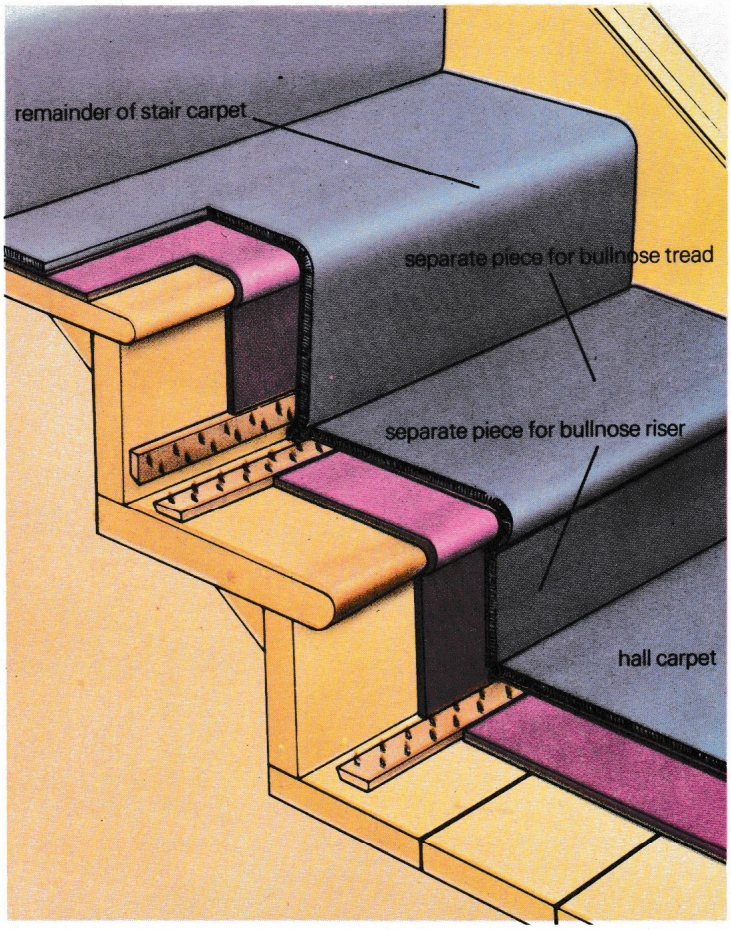
C. *To fit the carpet around winders cut a separate piece for each step and riser. Underlay is fixed as normal with extra side pieces cut to fit*



D. *At the bottom of a flight of stairs there is often a bullnose step. The nosing of this step protrudes well over the bottom riser*

a latex compound. Coat the latex on to the cut edge and allow this to dry before you start laying the carpet (fig. 9).

Roll up the carpet, pile inwards, and start laying from the top of the stairs, making sure that the slope of the pile runs down the stairs. Butt the end of the carpet against the top riser so that it lies flat and even on the tread and is well engaged on the gripper pins.

Run the carpet down over the stairs, driving it into each junction of tread and riser as you go with a blunt bolster (fig. 10). Note how doing this tightens the carpet on to the gripper pins but take great care not to split it.

If you have allowed extra length for future movement of the tread, fold this neatly and tack it to the bottom riser. If there is no moving allowance, simply bring the carpet down to the bottom of the last riser and secure it there to a strip of gripper. Any cut-outs, such as those for newel posts, should be sealed with latex.

Half landing: Fit the carpet so that it continues from the half landing down over the stairs in one complete piece.

Pre-nailed grippers must be fixed to the floor on both sides and at the back, with the gripper pins sloping away from the centre. When fixing the side grippers in place, leave a gap of three-quarters the thickness of the carpet between them and the walls so that the carpet can be fitted.

Press the carpet on to the gripper at the end wall leaving a fraction turned up. Tension the carpet by driving it into the first tread/riser junction with the bolster. Then all you have to do is to come back to the half landing and neatly tuck in the fraction of turned-up carpet between the gripper and the wall. Continue fixing the carpet down over the stairs in the normal way.

Winding stairs: The carpet for each step must be individually tailored from a separate piece of carpet (fig. 11). Adjust the spikes on your carpet stretcher so that they are long enough to penetrate the pile and firmly grip the backing.

First, cut the carpet to fit the winding step and seal the edges with latex if necessary. Work from the bottom up, stretching the carpet from the gripper on the riser to the grippers previously fixed to the tread as with the half landing (fig. 4). Now tuck the edge of the carpet between the grippers and the wall to leave a neat, taut finish at the edge.

Bullnose steps: The carpet must again be tailored separately but this time with two pieces of carpet: one for the tread and one for the riser (fig. D). The underlay should reach just over the nosing, level with the underside of the tread.

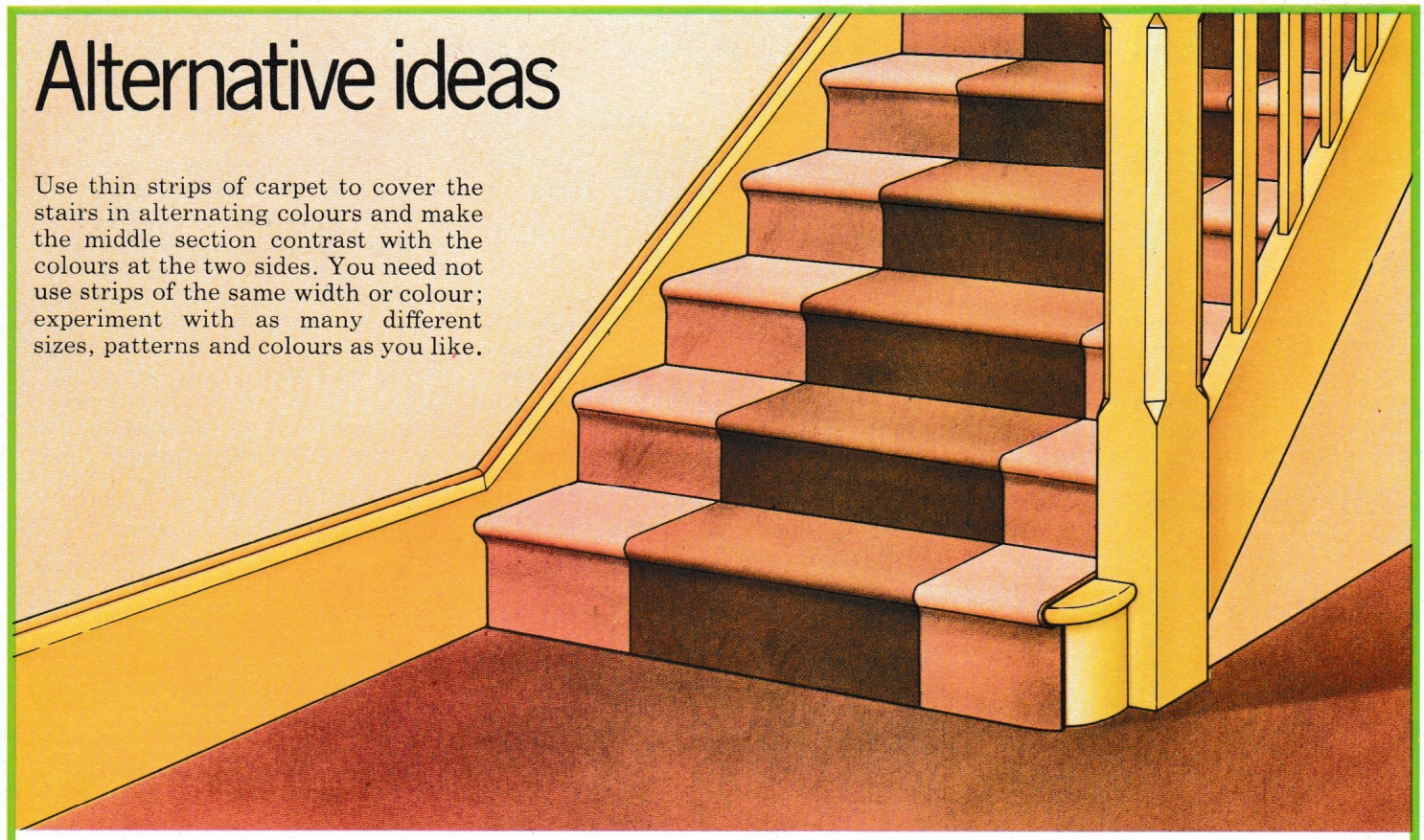
Cut the first piece of carpet to fit the bullnose tread but allow enough to tack under the nosing (fig. D).

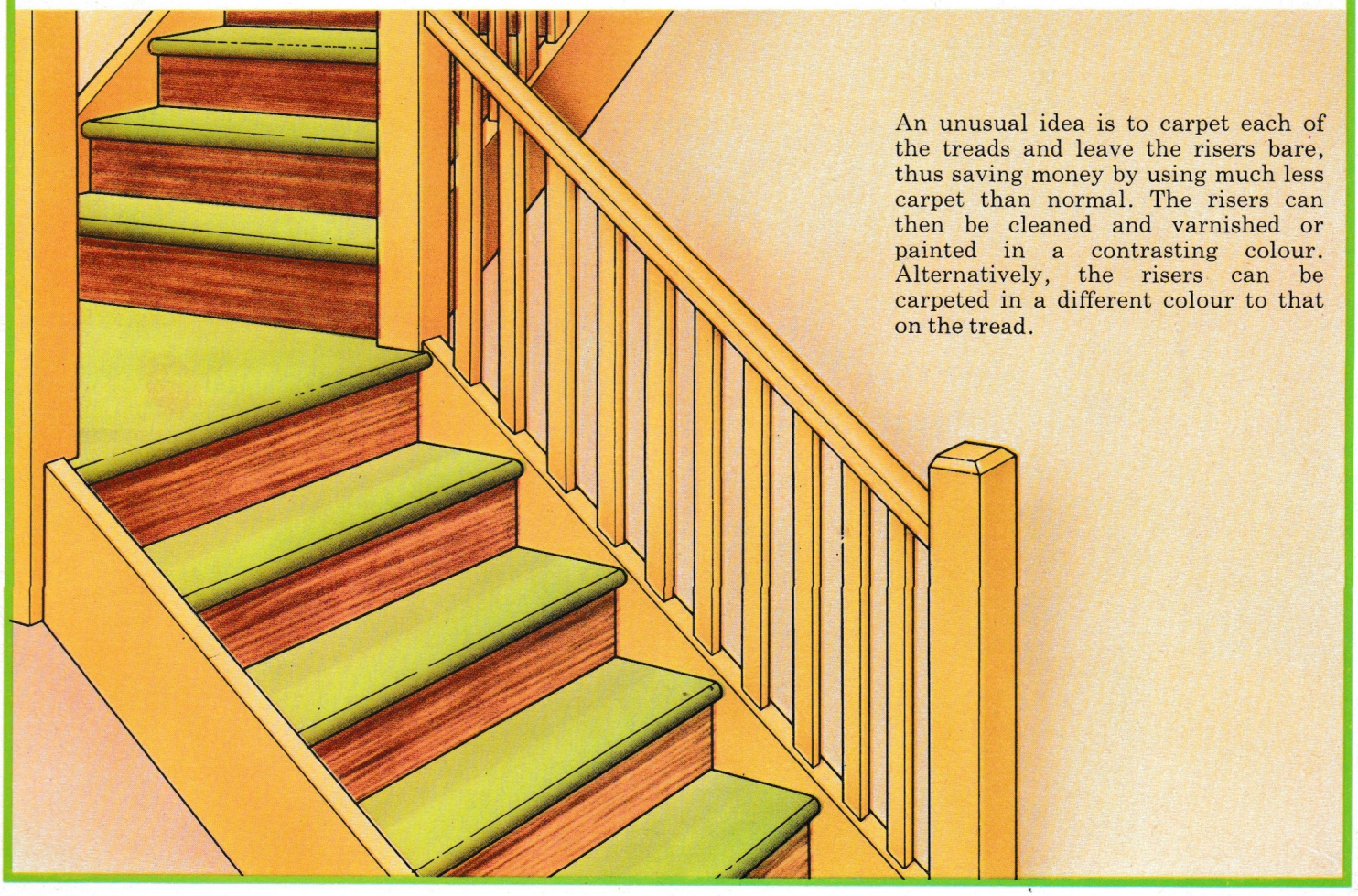
To make the carpet conform to the curved shape of the tread, cut out V-shaped notches around the curve. As the carpet is tacked under the nosing, the notches will close up to give the required contour. Complete the bullnose by tacking the riser carpet in position. Remember to seal all out edges if the carpet frays.

To do this spread latex compound along the frayed edges and allow to dry.

Alternative ideas

Use thin strips of carpet to cover the stairs in alternating colours and make the middle section contrast with the colours at the two sides. You need not use strips of the same width or colour; experiment with as many different sizes, patterns and colours as you like.





An unusual idea is to carpet each of the treads and leave the risers bare, thus saving money by using much less carpet than normal. The risers can then be cleaned and varnished or painted in a contrasting colour. Alternatively, the risers can be carpeted in a different colour to that on the tread.

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Project

A revolving cabinet

A revolving cabinet is very useful where you have to store many small items which would get lost in a large drawer. This design for a drinks or record cabinet brings handy storage within easy reach

This unit has a sturdy top fixed on a rigid frame, suitable for a drinks table or for a music centre. The section underneath revolves inside the frame and has compartments which you can adapt to take records and tapes or drinks, mixers and glasses.

Build it from veneered chipboard for strength, simplicity and an attractive finish. Make all the joints as shown, by simply screwing and gluing the panels together.

Follow the drawings to cut out and join the panels for the revolving section. Adapt the compartments as you wish to suit your needs.

Build the plinth, complete with the wheels which support the revolving section and allow it to turn. Fit the spindle down through it and add the top and back panels. Use a solid spindle for the drinks cabinet, and a hollow one for a music centre, so you can run a power supply through it. Finally, finish with sanding sealer and lacquer to a high polish.

Alternative ideas

There are many alternative uses for a revolving storage unit. Just two of these are shown here.

The first picture shows a unit designed to house a hi-fi system and a collection of records and tapes. Details of some of the sort of storage you need for this kind of unit are given in the drawings overleaf. You can fit a music centre on top of the basic unit, which it will accommodate very effectively. For a hi-fi system with separate components, you can simply add extra layers to build a hi-fi tower.

The second illustration shows a sewing table designed around the basic unit. This has plenty of storage for materials, threads, needlework tools and accessories. You can make this very easily, simply by extending the top of the unit and adding a support to form the table. Just adapt the divisions in the storage compartments to suit the items you want to store.

Workplan

Cutting List

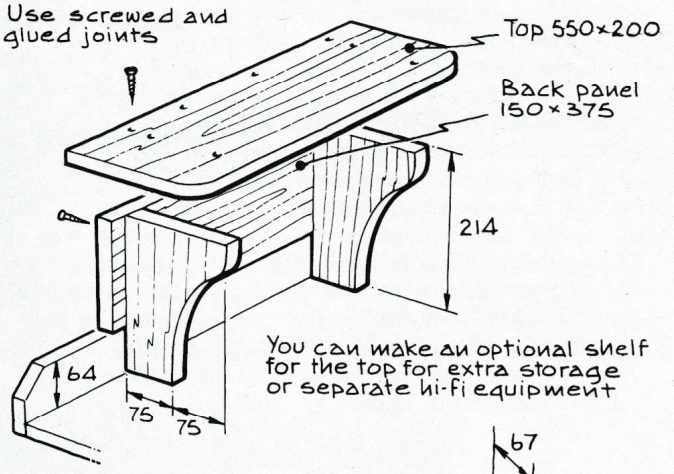
All sizes are in millimetres. Letters in brackets identify the panels on the plans

Part	Material	No.	Size
top (a)	16mm veneered chipboard	1	610mm x 686mm
base (b)	16mm veneered chipboard	1	588mm x 460mm
plinth rails (c)	16mm veneered chipboard	2	540mm x 75mm
plinth rails (d)	16mm veneered chipboard	2	460mm x 75mm
back supports (e)	16mm veneered chipboard	2	715mm x 150mm
back rail (f)	16mm veneered chipboard	1	250mm x 75mm
back supports (g)	16mm veneered chipboard	2	699mm x 45mm
back upstand (h)	16mm veneered chipboard	1	686mm x 80mm
top and base (i)	16mm veneered chipboard	2	508mm x 508mm
back supports (j)	16mm veneered chipboard	2	667mm x 150mm
centre shelf (k)	16mm veneered chipboard	1	508mm x 508mm
main dividers (l)	16mm veneered chipboard	2	508mm x 325mm
dividers (m)	16mm veneered chipboard	4	325mm x 300mm
dividers (n)	16mm veneered chipboard	2	325mm x 115mm
doors (o)	16mm veneered chipboard	4	322mm x 148mm
dividers (p)	16mm veneered chipboard	2	325mm x 316mm
door (q)	16mm veneered chipboard	1	322mm x 150mm

Revolving mechanism: 5 No. hardwood blocks 100mm x 45mm x 32mm, 5 No. 50mm diameter plastic wheels, 410mm diameter plastic laminate, 775mm 19mm copper tubing, olive, 50mm diameter steel washer (or cut from metal scrap)

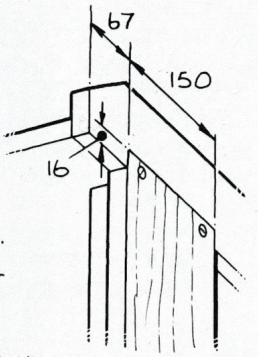
Additional material: chipboard screws, PVA woodworking adhesive, magnetic catches, flush hinges, iron-on edging veneer, 6mm plywood and 16mm veneered chipboard for optional extra shelving and dividers (can be made from offcuts)

Finish: 2 coats of sanding sealer followed by 2 coats of polyurethane or melamine lacquer



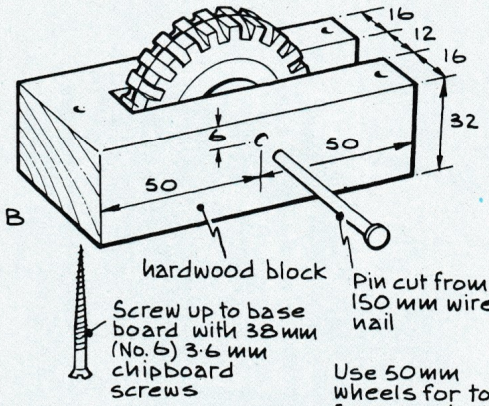
You can make an optional shelf for the top for extra storage or separate hi-fi equipment

To assemble the unit, build the revolving section first. Fit the spindle to the top and fit this through the revolving section. Fit the plinth to the end of the spindle and pass the locking pin through the spindle. Finally screw on the back to hold the top and plinth together

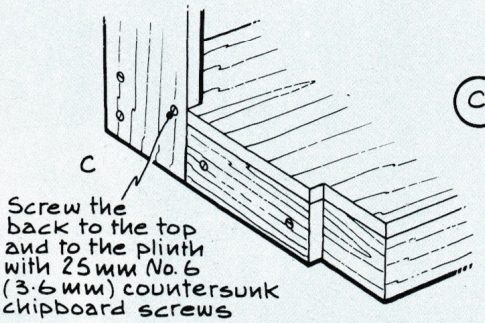


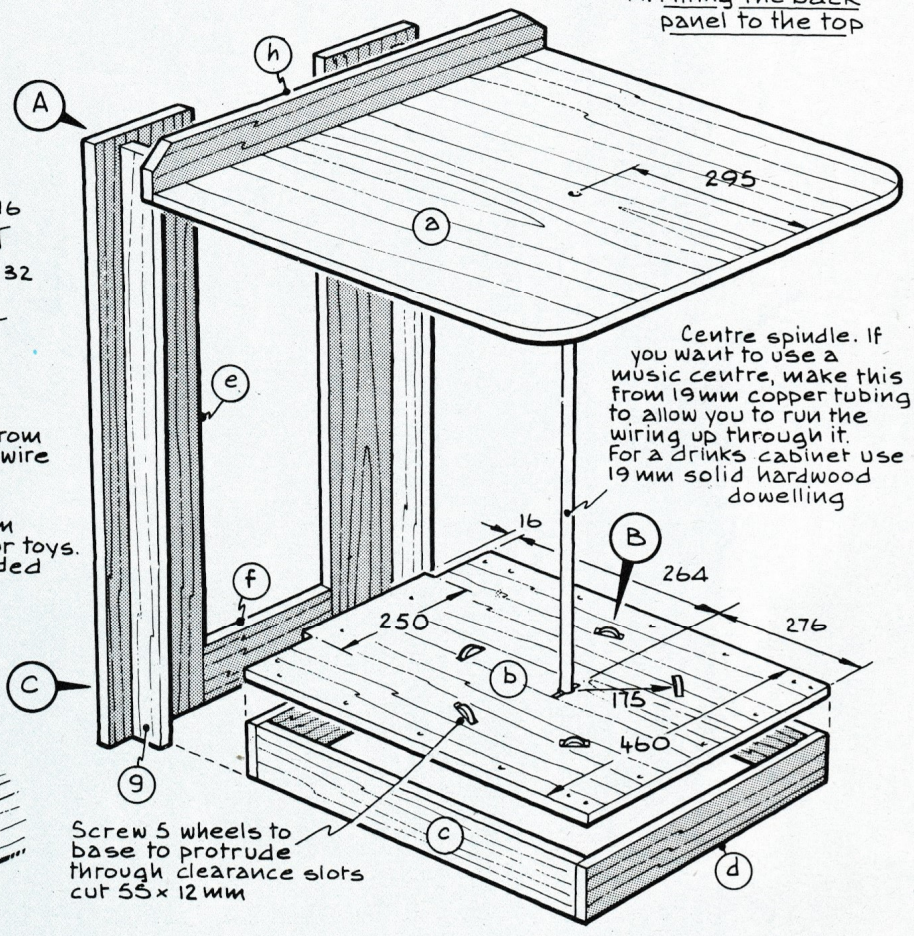
A. Fitting the back panel to the top

You can buy metal turntables for revolving furniture. A cheaper alternative is to make your own like this

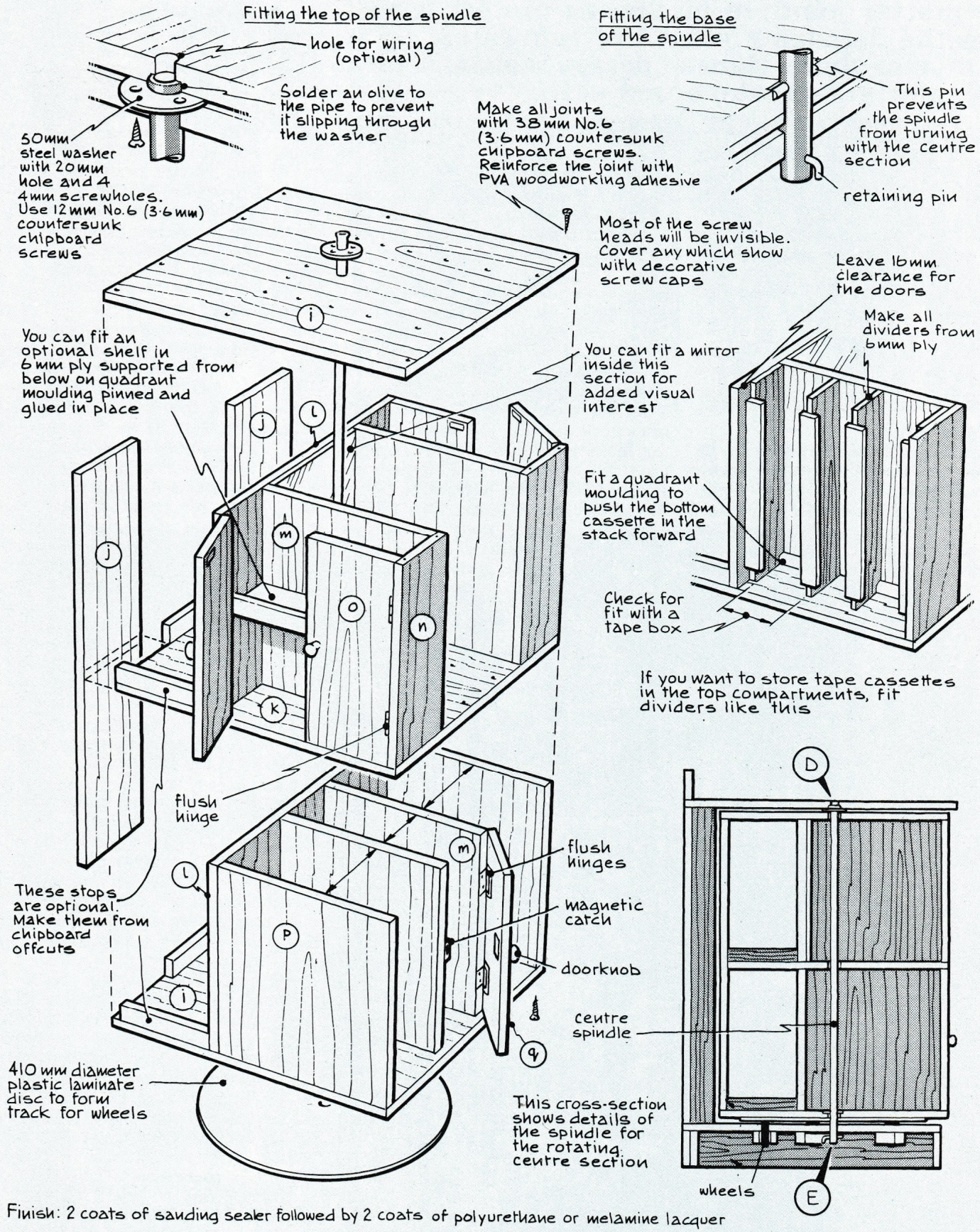


Use 50mm wheels for toys. 5 are needed





Advertising Arts


Fitting the top of the spindle
hole for wiring (optional)
Solder an olive to the pipe to prevent it slipping through the washer
50mm steel washer with 20mm hole and 4 4mm screwholes. Use 12mm No.6 (3·6mm) countersunk chipboard screws
Fitting the base of the spindle
This pin prevents the spindle from turning with the centre section
retaining pin
Make all joints with 38mm No.6 (3·6mm) countersunk chipboard screws. Reinforce the joint with PVA woodworking adhesive
Most of the screw heads will be invisible. Cover any which show with decorative screw caps
Leave 16mm clearance for the doors
Make all dividers from 6mm ply
You can fit an optional shelf in 6mm ply supported from below on quadrant moulding pinned and glued in place
You can fit a mirror inside this section for added visual interest
Fit a quadrant moulding to push the bottom cassette in the stack forward
Check for fit with a tape box
If you want to store tape cassettes in the top compartments, fit dividers like this
flush hinge
flush hinges
magnetic catch
doorknob
centre spindle
These stops are optional. Make them from chipboard offcuts
410 mm diameter plastic laminate disc to form track for wheels
This cross-section shows details of the spindle for the rotating centre section
wheels
i
j
k
l
m
n
o
p
q
D
E

Finish: 2 coats of sanding sealer followed by 2 coats of polyurethane or melamine lacquer

Repointing brickwork

The mortar joints in brickwork protect a wall from the damaging effects of rainwater. So if the mortar shows signs of decay, replace it with fresh mortar to make a new seal

As long as brickwork is correctly designed and well built, it does not require much in the way of maintenance or repair work. But, as a building ages, the mortar joints between the bricks may begin to decay and crumble. Flaking joints in brickwork allow water to penetrate the wall and should never be neglected. The remedy for crumbling joints is repointing—clearing out the old mortar a short way and replacing it with fresh mortar to make a new waterproof seal.

Types of joint

The mortar between bricks can be finished in one of several ways; wherever possible, you should try to match new joints to the existing ones. However, if the old mortar is particularly badly decayed, you may not be able to see what type of joint has been used. In this case it is worthwhile making new weather-struck joints (fig. C).

The horizontal joints of this type have sloped surfaces which are slightly recessed below the upper brick and slightly overhanging the lower one. This slope allows water to run off quickly and prevents it from lodging on the lower edge of the joints, thus giving the wall further protection from rain and moisture. The vertical joints slope from one side to the other and match the angle of the horizontals above and below. Other types of joint commonly used in brickwork include:

Flush joint: When the mortar has almost dried, it is rubbed over with a piece of wood or old sacking to produce a surface flush with the surrounding brickwork (fig. E). This type of pointing looks particularly effective when used in conjunction with smooth-surfaced bricks (see pages 20 to 25).

Keyed or round joint: This is produced by running along the surface of the mortar with a semi-circular piece of metal to form a shallow, curved depression (fig. B).

Below: *This mortar is in bad need of repair—if left for very much longer rainwater will seep through*

Gavin Cochrane

Recessed joint: This is formed by scraping out the freshly-laid mortar to a depth of about 6mm below the brick surface, then smoothing the surface of the remaining mortar with a piece of wood the width of the joint (fig. D). Recessed joints look best on rough-textured bricks but should be used only where they match the existing pointing. If used on external walls in cold climates, the bricks must be hard and durable, otherwise water may collect and freeze on the ledges causing pieces of brick to flake off.

Equipment

For repointing brickwork, even if you are working over quite a small area of wall, you need a spot board on which to mix the mortar and a hawk for carrying the mortar to the work area (see pages 20 to 25 and 156 to 159). For applying the mortar to the joints, you need a pointing trowel, which resembles a small bricklayer's trowel and for clearing out the old mortar, use a shave hook with its pointed end cut off square.

If you are constructing weather-struck joints, you also need a *frenchman* for trimming away the excess mortar at the bottom of the horizontal joints. A suitable frenchman can be made from an old kitchen knife. Use a hacksaw to cut off the end of the knife, smooth off any burrs around the cut with a file, then heat the tip and bend it into a right-angle about 12mm from the end.

To guide the frenchman neatly along the joints when trimming, you need a straight-edged piece of timber which is held immediately below the top edge of the lower brick. Attach two pieces of hardboard to each end of the piece of wood so that when it is held against the wall, there is a slight gap allowing the trimmed mortar to fall through (fig. A).

Wherever possible, the mortar for repointing should be mixed to match the composition of the existing mortar. If you do not know the mixing proportions of the original mortar, use a 1:1:6 (cement:lime:sand) mix as this will adhere to most types (see pages 20 to 25). An exception to the rule is the softer type of facing brick, where you should use a weaker 1:2:9 mix (see pages 133 to 134).

Use as fine a grade of sand as possible. If the only sand available is coarse, work it through a fine-meshed sieve to remove any pebbles.

Working considerations

Repointing is generally best undertaken during warm weather as newly laid mortar is easily damaged by frost, particularly if you are using a weak mortar mix.

If you are working on a high wall, set up a platform or suitable scaffolding, so that you are working at chest height. Never be tempted to carry out pointing work standing on a ladder: you will not be able to reach the joints properly and you may fall.

If the area to be pointed is large, tackle the work in stages, finishing off the joints over an area of about $2m^2$ before moving on to the next. Start work at the top left hand corner of the wall and move across and downwards.

Mortar for pointing should be mixed in small batches and then used immediately (see pages 20 to 25). If you do mix too much, and some begins to dry out and harden before you come to use it, discard it and mix a fresh batch. Do not try to reconstitute hardening mortar by adding more water to it.

Preparing the surface

If there is paving below the wall to be repointed, lay down a large sheet of polythene before you start work to protect the concrete path from stray mortar droppings.

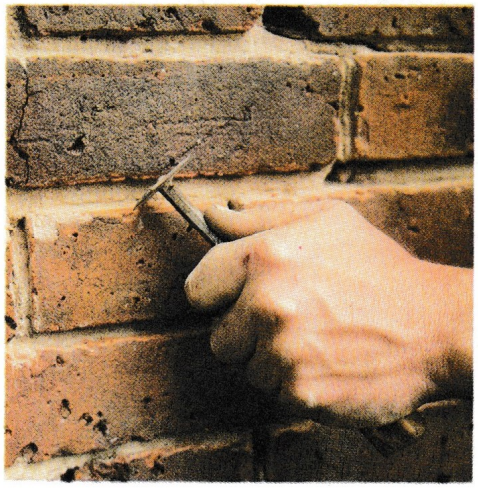
With the protective sheeting in place, gently scrape any lichen and moss from the surface of the brickwork, taking care not to damage the faces of any bricks.

When the brickwork is clean, start raking the joints, using the shave hook or a plugging chisel, to a depth of between 12mm and 20mm—if you clear out the mortar further than this, the wall may be damaged. Rake out the vertical joints—called *perpends*—first and then the horizontal, or *bed*, joints again taking care not to damage the bricks.

Make sure that the recess formed in the joints is absolutely square and that no traces of old mortar remain on the edges of the bricks (fig. 1). If you fail to remove all the old mortar, the fresh mortar will not adhere properly and will soon flake and crumble.

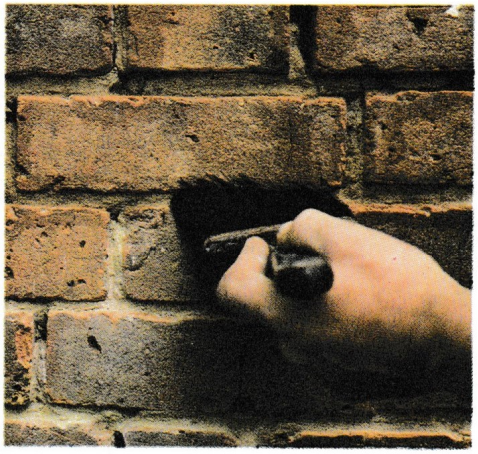
When all the joints in the area to be repointed have been raked out, brush them thoroughly with a stiff scrubbing brush to remove any remaining particles and dust (fig. 2).

In order to prevent too much moisture being absorbed by the surrounding brickwork from the fresh mortar, dampen the wall by flicking thoroughly clean water over the surface with a distemper brush (fig. 3). However, take care not to use too much water or you will soak the brickwork and the fresh mortar will not adhere properly.



1 *To prepare the surface of brickwork for repointing, rake out the joints a short way with an old shave-hook*

2 *Make sure that no traces of old mortar are left at the edges and brush down the joints to remove any remaining dust*



3 *Dampen the surface of the brickwork with a distemper brush and clean water to make sure that the new mortar will bond*

4 *Mix up your first batch of mortar taking care not to prepare too much. Try to match the composition of the mix with that of the old mortar*

Gavin Cochrane

Handling the trowel

Opinions vary on the best way of using a pointing trowel, so it is best to experiment until you find a style that suits you before you start.

You may find that the easiest method is to roll the mortar down the hawk and divide it into 'strands'—as long as the trowel and about 12mm thick. Pick up each strand on the back of the trowel, along one edge, and flick it firmly into the waiting joint.

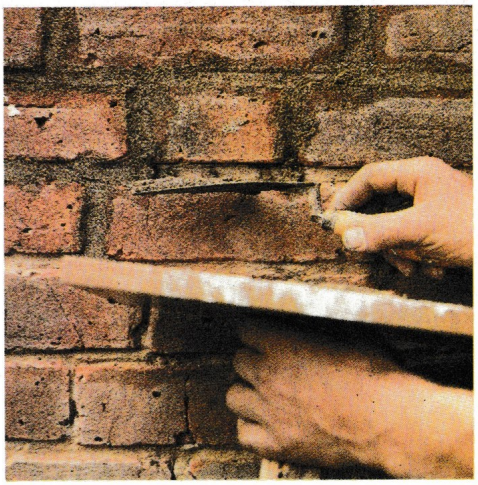
Weather-struck joints

Although slightly more difficult to construct than other types of brick joint, weather-struck joints are well worth the extra trouble as they give the wall added protection against water penetration.

To fashion weather-struck joints, start by transferring a manageable amount of mortar from the spot board to the hawk and carry it to the work area. Using the pointing trowel, force some mortar well into the first few perpends. Use the trowel to form a sloping angle by drawing it down the edge of the brick on the right hand side of the joint, then cut off the excess mortar neatly with the edge of the trowel (fig. 7).

Move on to the bed joints above and below the filled perpends. Holding the trowel point upwards, press in more mortar, so that it is recessed to a depth of about 3mm at the top of the gap and slightly overhangs the edge of the brick at the bottom.

5 *Transfer a manageable amount of mortar to the hawk and divide it into strands as long as the trowel and about 12mm thick*



6 *Carry the hawk to the work area and pick up strands of mortar with the back of the pointing trowel. Force the mortar into the joints*

7 *If you are making weather-struck joints, form the sloping angle in the perpends by drawing the trowel down the edge of the brick*

Gavin Cochrane

8 *Tuck the mortar into the beds of weather-struck joints so that it is recessed under the top brick and slightly overhangs the lower one*

9 *Trim off the excess mortar at the bottom of the weather-struck joints with a frenchman, then brush the joints to remove waste*

10 *If you are making recessed joints use a shave hook, with its point cut off, to scrape out the freshly laid mortar*

When you have used up the first batch of mortar, make the rough slope already formed in the perpends neater by trimming off any remaining excess with the pointing trowel so the mortar is recessed 3mm on the right hand side.

Next, take the frenchman and straightedge to the wall. Holding the straightedge immediately below the lower edge of the bed joints, run the frenchman along the wall, with its tip pointing downwards, to cut off the excess mortar (fig. A).

When the mortar has begun to harden, rub the joints with a dusting brush to remove any remaining waste then move on to the next section.

Flush and keyed joints

Pointing brickwork with flush joints provides a neat finish and can be particularly useful on old brickwork where the outer corners of the bricks have crumbled and the wall surface is to be redecorated.

Start as for weather-struck joints by filling perpends then bed joints. Press the mortar firmly into place with the pointing trowel, until it protrudes slightly out from the surface of the brickwork.

When the mortar starts to harden, rub along the joints with a piece of wood or old sacking working in the same direction, until the mortar is flush with the surrounding brickwork (fig. E). When completely dry, scrape over the mortar with a stiff piece of plastic to remove any excess particles of mortar dust.

To form a keyed joint, press the mortar well into the joints with the trowel, then smooth it to shape with a semi-circular piece of metal—an old metal bucket handle or a small piece of metal piping are ideal for this task. Marginally less efficient is a piece of stout rubber hose. After rubbing the joints, trim the surplus mortar at the edges with the trowel.

Cleaning the brickwork

Although all the joints should be cleaned off as thoroughly as possible during the pointing process, it is difficult to achieve a completely clean finish by this means alone and some mortar will probably be left adhering to the edges of the bricks.

Never try to remove mortar which has been spattered on bricks while it is still wet, or attempt to wash it off with water. Instead, leave the excess mortar to dry out completely then use a stiff scrubbing brush to brush the soiled bricks. Remove large lumps of mortar on clay bricks by scraping with the side of a trowel. With calcium

silicate bricks, lightly abrade the surface with a brick of the same colour to remove large pieces.

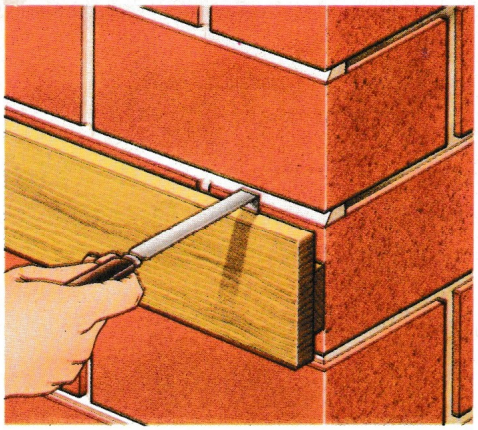
If marks still remain on the brickwork because the mortar has penetrated the surface, they can be removed with a very dilute solution of hydrochloric acid—1:10 by volume for clay bricks and 1:2 by volume for calcium silicate. Saturate the brickwork with clean water, then apply the solution sparingly with an old paint brush, taking great care not to get any on your skin or in your eyes. When the area has been thoroughly treated, hose down the brickwork to remove every trace. The surface of some types of brick can be affected by acid so, if in doubt, consult the brick manufacturer before embarking on treatment of this kind.

Colouring joints

To produce a matching or decorative effect in finished brickwork vegetable dyes, proprietary colourants and special coloured cements are all available from builders' merchants and can be added to the mortar mix if desired. But because the colour will be altered by the texture of ordinary sand, you should use white sand in the mix, if possible. Remember also that cement with colour additives requires less water than is normally used.

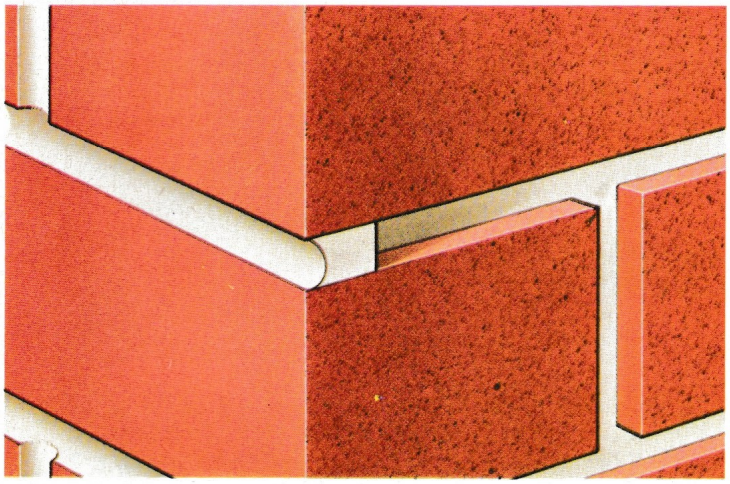
If you use a vegetable dye, the final colour will be a lighter shade as the colour pales as the mortar dries; experiment first with small measured quantities of mortar and dye and allow them to dry out. When you have obtained the required shade in one of the experimental batches, mix up your first full batch and add the dye in an equal proportion.

If you are repointing part of a wall and want the colour of the fresh mortar to match that in the existing joints, rub the joints around the area with candlewax to prevent them from absorbing the colouring in the new mortar mixture.

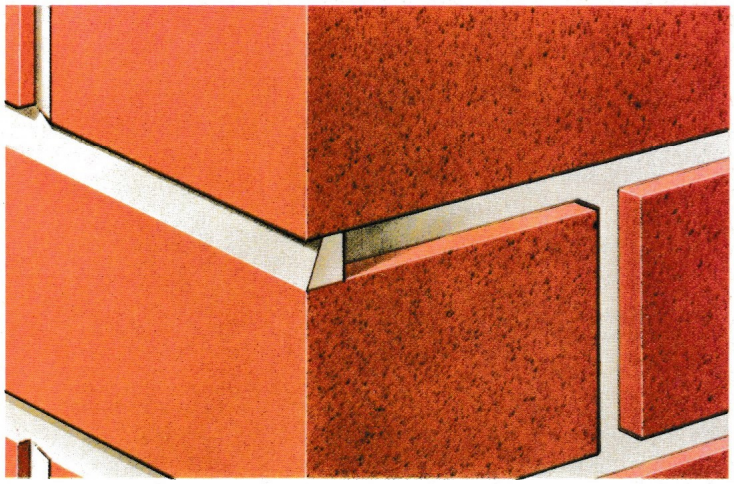


Bernard Fallon

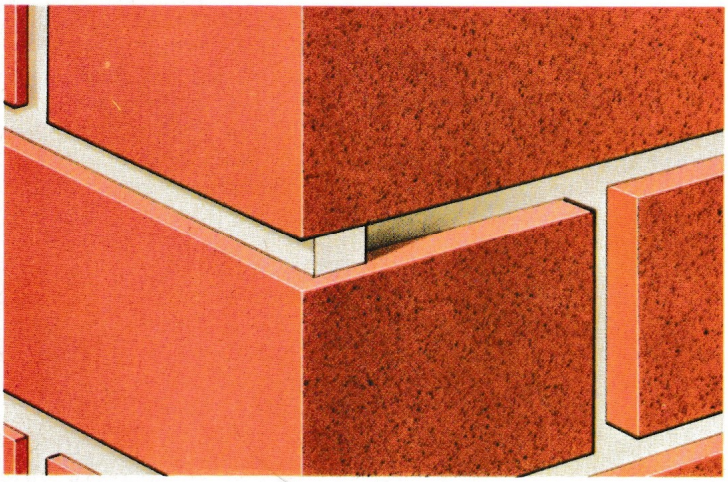
A. *To trim the excess mortar from the bottom of the weather-struck joints, use a frenchman and draw it along the top edge of a straight length of timber held just below the top edge of the lower brick. Attach a thin block of wood to each end of the timber to let the trimmed mortar fall through the gap. Make a frenchman from an old kitchen knife*



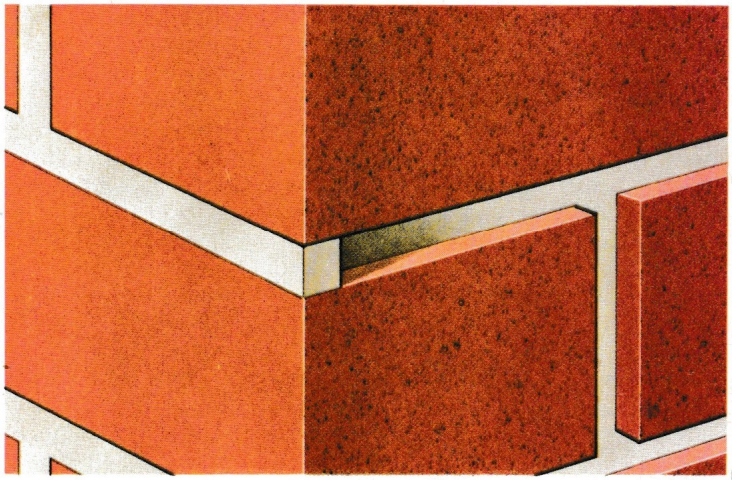
B. *Keyed joints are formed by smoothing the surface of the mortar with a rounded piece of metal*



C. *The slope of weather-struck joints allows water to run off quickly, protecting the wall from rain*



D. *The mortar in recessed joints is scraped out to a depth of about 6mm below the brick surface*



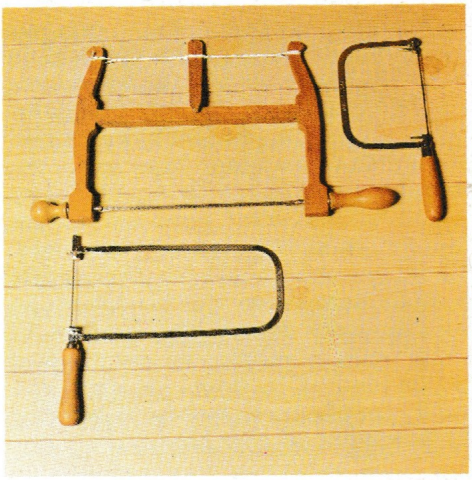
Bernard Fallon

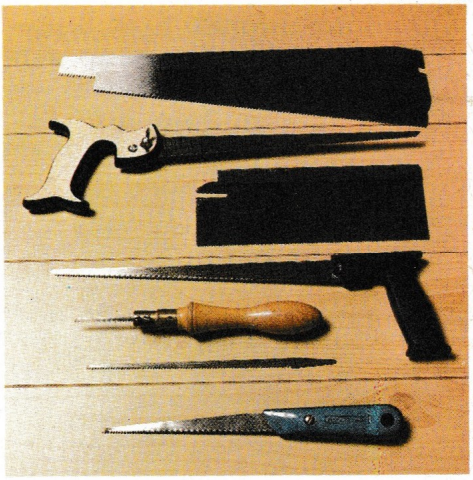
E. *Flush joints are produced by rubbing the mortar with a piece of wood to form a smooth surface*

Saws with special uses

● The efficient but clumsy bow saw ● The coping saw for cutting thin wood ● Intricate work with the fret saw and piercing saw ● Useful non-framed saws, files and shears ● Making a decorative shelf

Ray Duns





Above left: *A range of Abrafiles, some of which can be fitted to hacksaw and fret saw frames, with the Goscut tool on the right.* **Top:** *Bow saw, coping saw and fret saw.* **Above:** *padsaw and compass saws*

For most jobs in carpentry, a straight cut is normally all that is required, and for this you can use either a tenon saw or a hand saw. But occasionally you may want to produce a curved cut or start a cut within the central part of a plank or board, jobs for which these general-purpose saws are quite useless.

Typical problem jobs range from cutting a keyhole or shaping furniture woodwork, on to more complicated tasks such as making a jigsaw puzzle or an intricate screen. For all these forms of contour cutting you need a saw blade which is flexible and narrow: there are a variety of saws meeting this requirement.

The bow saw

Those saws employing the narrowest blades use a tensioning frame of either wood or metal. These frame saws should not be confused with the heavy-duty types used in place of hand saws and for gardening use.

First of these saws is the *bow saw*, also known as the *sweep saw* or *turning saw* (fig. 1), which is a clumsy but efficient tool for cutting curves in thicker wood.

The frame is not glued together; instead the 'spreader' is dry-jointed into the side-pieces, or 'cheeks' with stub-tenons in such a way that tightening the string causes the cheeks to pivot on the spreader and tension the blade. By moving the back knob and handle the blade can be turned in any direction, though this must be done carefully to avoid twisting the blade in use.

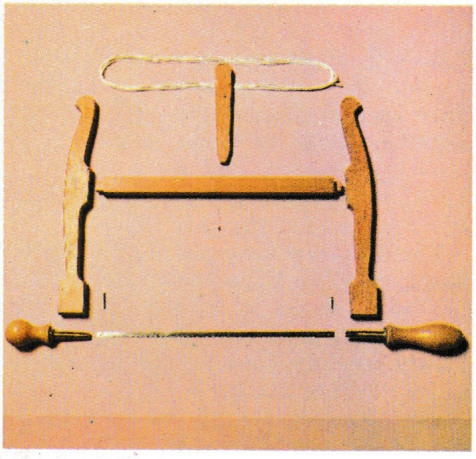
Although the blade length can range between 200mm and 400mm, a middle length—say 300mm—is the most useful. Eight or ten teeth per 25mm is usual for bow saw blades.

The bow saw blade is held in position by two tapered pins, with the teeth pointing away from the large handle. When new, the pins are usually flush with the blade holders and you will need to use a fine-tipped pin punch to remove them. Many users prefer to replace these flush pins with fine panel pins which are bent to stop them dropping out when the tension on the blade is released.

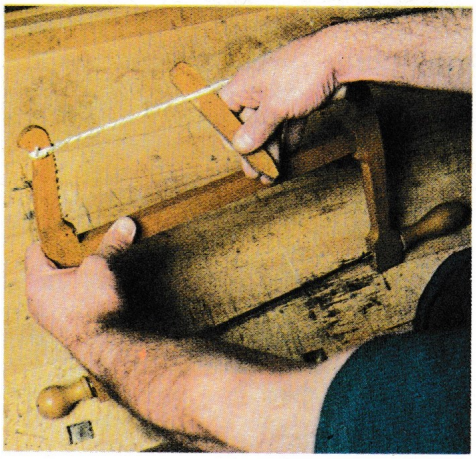
Another good idea is to replace the tensioning string with several strands of sailmaker's polyester whipping line.

Before use, tension the blade by turning the twisting slat until the whole frame becomes rigid (fig. 2). The workpiece is placed vertically in a bench vice—large pieces may be supported by cramping a block of wood to the bench leg.

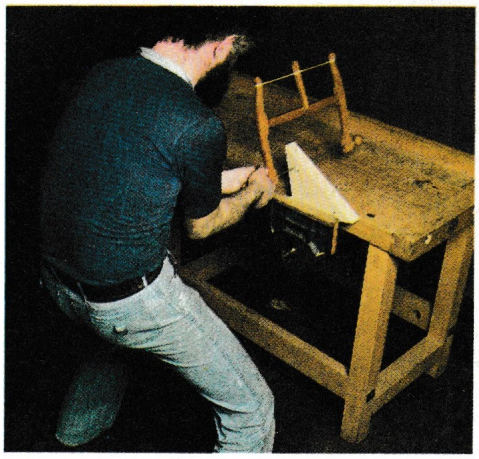
Adjust the blade angle to suit the angle of sawing. Stand facing the work and grip the saw with the large handle in both hands, thumbs crossed on top of the handle and the fingers of one hand overlapping those of the



1 *Components of the bow saw are not glued together but dry jointed and held together when the blade is tensioned*



2 *A bow saw blade is tensioned by tightening the string at the top. For extra strength replace this with whipping line*



3 *The recommended stance for using the bow saw, with the back straight and knees bent to keep the blade level at all times*

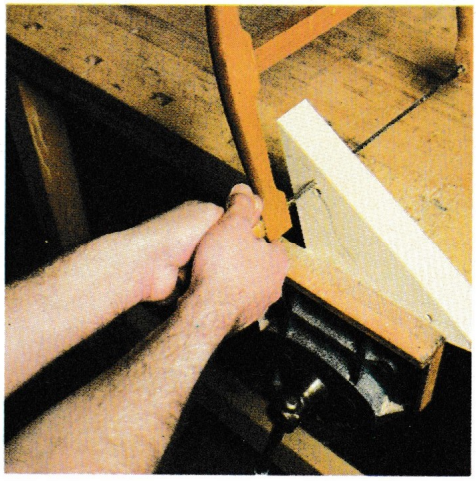
other according to preference.

For the cutting posture, keep your back straight, the blade and elbows level, and your feet apart. Bend your knees until the saw blade is at the correct working level (fig. 3). Keep the blade parallel with the ground at all times. Use natural elbow and wrist movement to make a backwards starting cut and reverse the direction for a forwards cut, continuing in this manner using the length of the blade to give long, even strokes.

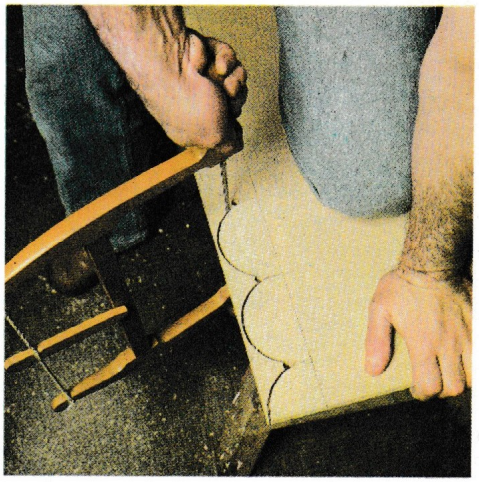
To make the blade follow a curve, gradually turn one wrist over the other—right over left for a downwards cut, left over right for an upwards cut (fig. 4). When necessary, change the angle of the blade to accommodate the throat of the saw. This should be done by twisting each handle alternately, a little at a time, while the other hand supports the saw frame.

An alternative way of holding and using a bow saw—especially when cutting large boards—is vertically. The workpiece is placed over low trestles or saw horses in such a way that enables you to rest one foot on the board during cutting.

Take care to keep your knees and fingers clear of the blade teeth by adopting a sensible posture (fig. 5). Being a one-handed cutting operation, it can be difficult to control the saw and to cut squarely through timber, so cut well on the waste side of the line and tidy up the work afterwards.



4 *To make the blade follow a downwards curve, gradually turn one wrist over the other as the cut lengthens*



5 *For cutting large boards, use the bow saw vertically but make sure the board is firmly supported on low trestles or saw horses*

The coping saw

For cutting curves in thin wood—and for removing waste from bridle, twin- and double-tenon and dovetail joints—a *coping* or *scroll saw* (fig. 6) is used. This has a blade length of 150mm with about 14 teeth per 25mm. The teeth normally point towards the handle. The blade can be changed and tensioned by unscrewing or tightening the handle.

Because the blade is so easily detached it can be passed through a pre-drilled hole as narrow as 4mm, after which it is reconnected to the frame to make internal cuts over an area within the 'reach' of the frame. The maximum depth of cut is between 120mm and 130mm.

The coping saw is held and used in a way similar to a bow saw when cutting a vertical workpiece, except that the cutting stroke is towards you. As the coping saw is normally used for cutting thin sections, take particular care in supporting the workpiece on both sides of the cutting line (fig. 7). Too much vibration will result in an inaccurate and rugged cut, and may cause the blade to jam or snap.

The fret saw

The *fret saw* (fig. 10) is similar in appearance to a coping saw, with a metal frame and an easily detachable blade of between 125mm and 150mm in length. Blade teeth numbers range between 16 and 32 for each 25mm of length. Blade thickness range from 0.86mm to 1.5mm, so a fret saw is particularly suitable for cutting sharp curves and intricate patterns. Frame depths range up to 500mm, enabling many intricate shapes to be cut at a considerable distance from the edge of the workpiece.

The fine blades are particularly suitable for cutting thin wood, plywood, veneers, vulcanite, ivory, horn

6 *The coping saw is useful for cutting thin wood and for trimming waste from most types of woodwork joint*

and plastics. The blade is held in a screw clamp arrangement and is tensioned by squeezing the long sides of the frame together prior to tightening the blade clamp screws.

As with the coping saw, the blade can be temporarily detached and fed through a drill hole in order to start an internal cut.

The fret saw (also known as a *bracket saw* or *buhl saw*) becomes a *jig saw* when power-operated. However, do not confuse this with the hand-held, power-operated sabre saw which is also known as a jig saw.

A fret saw can be used with the blade horizontal only if the weight of the saw is taken off the blade. For most work it is best to keep the blade in a vertical position, supporting the work with the spare hand on a home-made or proprietary work aid clamped to the bench.

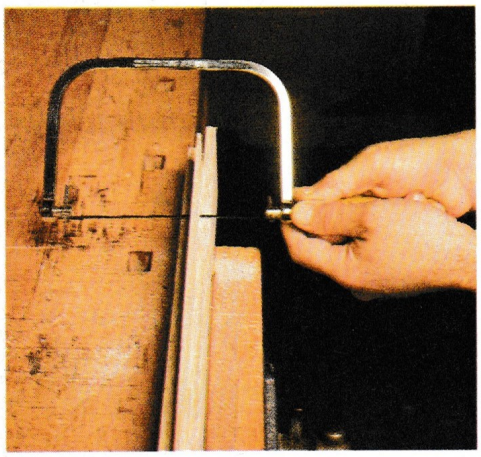
For most forms of work, bench pegs attached to the bench or table by screws or G-cramps are sufficient. Pegs for woodwork vary widely but a useful one can be made from 9mm or 12mm plywood, measuring 300mm wide by 460mm long with an overhand of about 330mm (fig. 11).

The ideal working position is sitting down, feet firmly on the ground. Hold the saw, blade vertical, with teeth pointing downwards. Cut with long, steady strokes, turning the workpiece as you follow the cutting line.

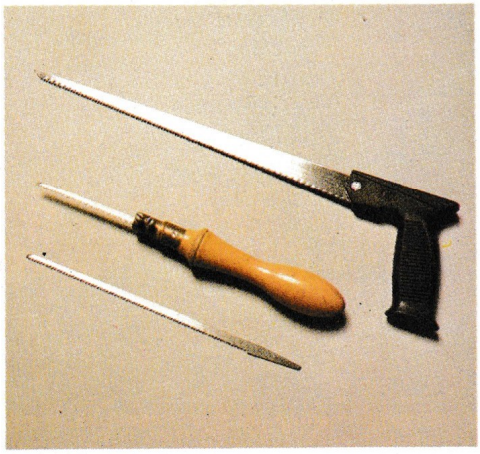
For an internal cut, drill a hole in the waste wood area away from the cutting line, then poke the blade through and reconnect it to the frame (fig. 12).

Non-framed saws

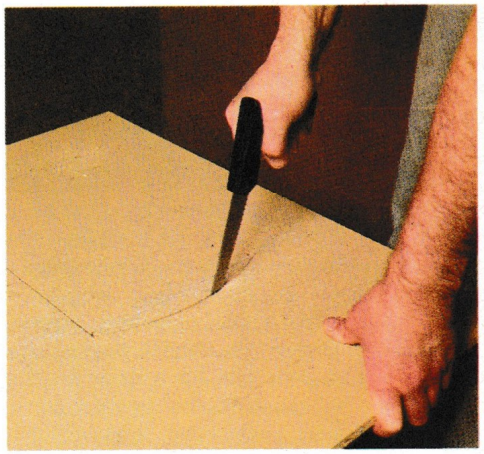
Cutting an opening beyond the reach of a frame saw is done either by



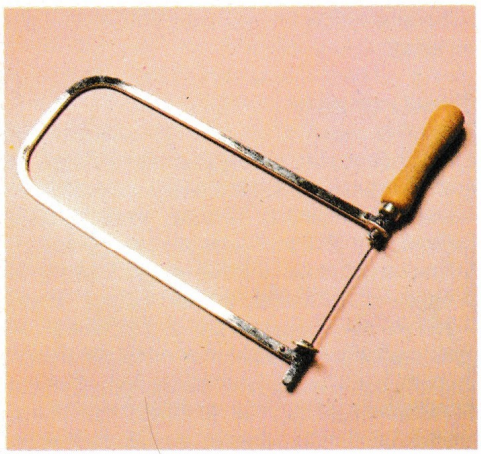
7 *Care has to be taken to see that work is supported both sides of the cutting line to avoid stressing the delicate blade*



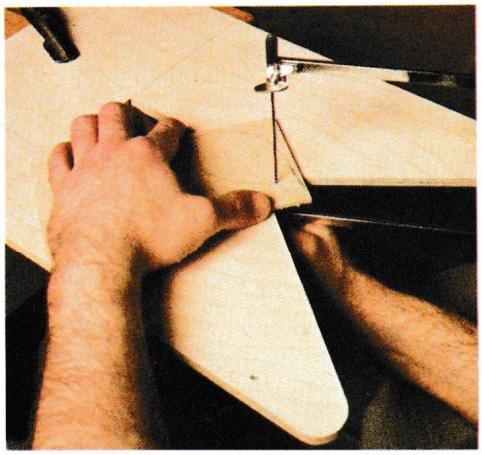
8 *The thin-bladed compass saw (top) and padsaw. The blades are soft-tempered to help prevent breakage when bent*



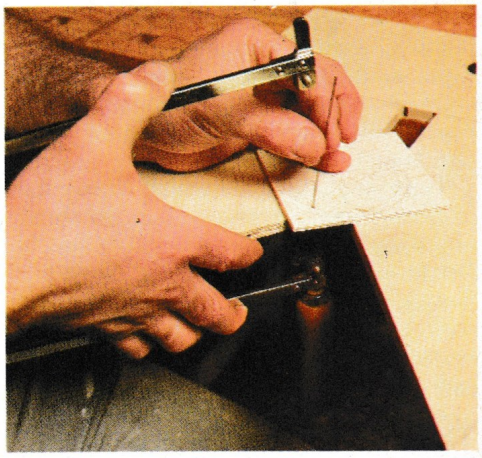
9 *The direction of cut can be controlled by exerting sufficient twist pressure on the blade as cutting proceeds along the line*



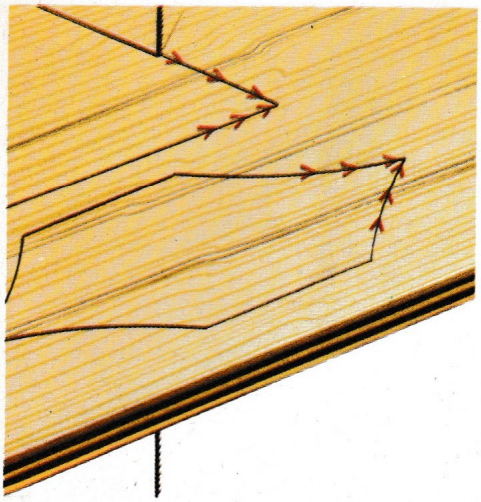
10 *The fret saw has a much deeper frame than the coping saw and is normally used with blades that are much finer*



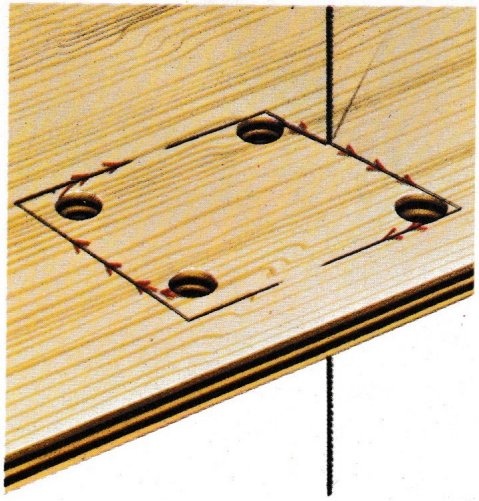
11 *Some form of work aid or platform considerably eases the job of sawing, normally done vertically and from underneath*



12 *The blade can be disconnected and passed through pre-drilled holes in waste areas, and then reconnected for sawing fine detail*



A. *When sawing within a piece of wood, always cut into the corners of the design, however great the angle*



B. *You can make the drilled access holes either on the line or well into the waste area of wood*

C. *A single large hole, or two or more smaller ones may simplify the cutting of awkward shapes*

drilling a series of holes and then chiselling out the waste, or by using a rigid narrow-bladed saw such as a *padsaw* or a *compass saw* (fig. 8).

The padsaw, or *keyhole saw* as it is sometimes called, has a narrow, tapering blade of between 150mm and 360mm in length with about 18 teeth per 25mm. The blades are relatively thick and soft-tempered to prevent breaking when bent and are held in a specially designed handle.

Some models have the handle slotted internally to enable the blade length to be adjusted to the depth required. Not only does this help prevent damage to unseen obstructions below the workpiece (such as cables below a floorboard), but it also minimizes the risk of the blade buckling during use.

The padsaw is most suitable for sawing out small internal apertures such as keyholes, but it can also be used to start awkward cuts for larger-bladed saws.

The compass saw blade length ranges from 250mm to 460mm and has between 7 and 9 teeth per 25mm. This is comparatively coarse, indicating the saw's use for cutting large-radius internal curves in thick plywood and other sheet materials.

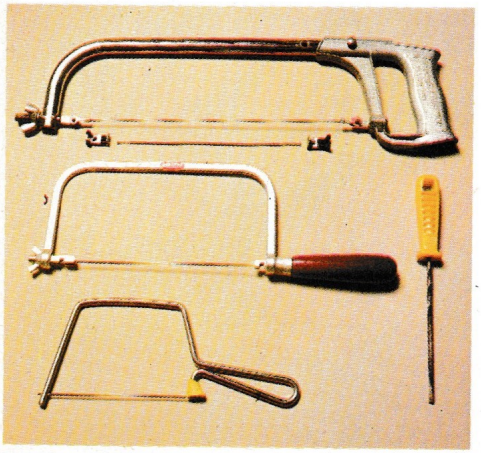
A hole, or series of holes, usually has to be drilled to start an internal cut (fig. B) with a padsaw or compass saw. Otherwise, the cutting techniques are similar to those used for hand saws. The direction of cut can be controlled by very gently twisting and bending the blade to encourage the saw to follow the required curve. The amount of blade used for each cutting stroke depends on the radius of the cut.

Other tools for cutting curves

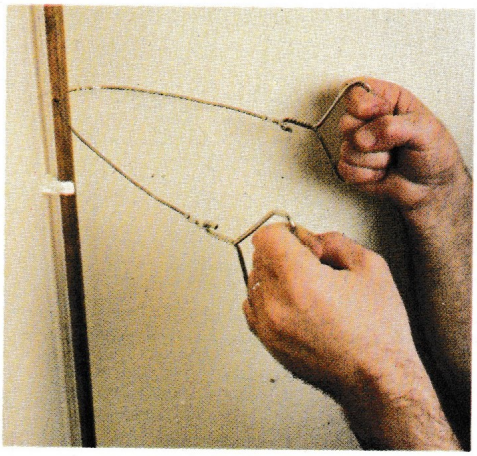
An *Abrafile* (fig. 13) is one of a number of other tools suitable for cutting and shaping in awkward spots. Available in a variety of forms, the tool consists of a soft core covered with a hardened steel cutting surface. This can be bent, straightened and hit without shattering as a normal file would.

There are three basic forms of Abrafile. The round hand files are similar in appearance to a normal round file and are available in thicknesses from 2.5mm up to 6.5mm.

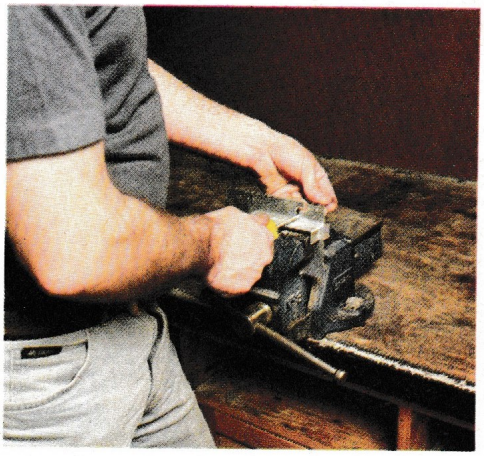
Abrafile tension files are available for fitting to frame saws. These are 1.5mm thick and between 150mm and 300mm long and can be fitted in place of the normal blade of most Junior Hacksaws, Abrafile coping saw-type frames and (with spring clip adaptors) to most larger hacksaws.



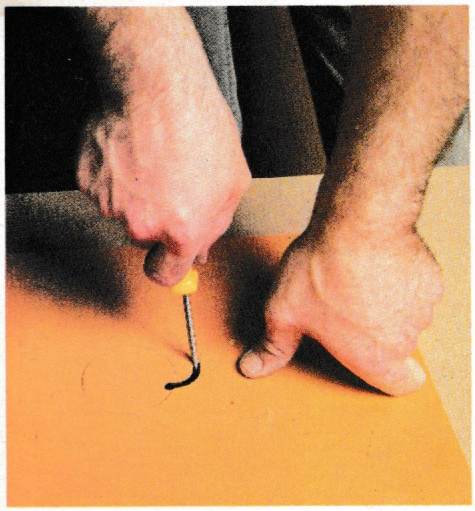
13 *Abrafiles are normally used in tensioning frames such as for a hack saw. Another form is used just like a hand file*



14 *The Flexi-Saw is suitable for coarse cutting of soft metals, plastics and most forms of wood but is best attached to a bow frame*



15 *For fine work in metal, use both hands and a careful, guided 'push-pull' filing action when using the straight Abrafile*



16 *The round hand file is also suitable for shaping apertures in large sheets. Use it one-handed, and slowly but surely*

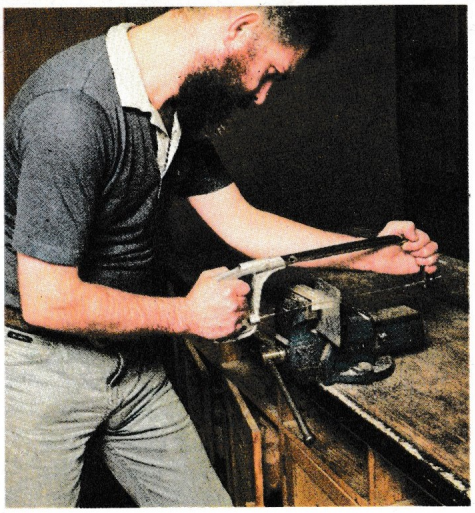
Another form, the Flexi-Saw (fig. 14), consists of a flexible, twisted, toothed-surface cutting wire with pull rings or handles at each end. It can be tensioned for long jobs by using a crude bow cut from a green and flexible tree branch, but for most jobs hand tension is sufficient. The Flexi-Saw can be used to cut wood, plastics and soft metal but is not suitable for fine cuts.

Other Abrafiles, though able to cut wood, are more suitable for use on metals and plastics. They can cut ferrous metals ranging from mild steel to stainless steel, as well as softer metals such as brass, copper and aluminium, without clogging.

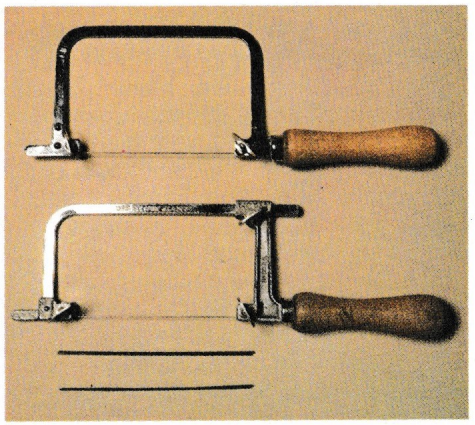
As Abrafiles have round cutters, they can cut in most directions simultaneously. But they work best if you use light pressure in the required direction of the cut only. The harder the material being cut, the slower and more gentle the push/pull cutting stroke needs to be.

The round types can be used just like a normal file: two hands for intricate jobs (fig. 15), a single hand when dealing with a large sheet (fig. 16). Tension files are used in frames in much the same way as the coping saw or hacksaw blades they replace. But, when used in a hacksaw frame, support work at about stomach height and hold the frame with both hands, adopting a stance similar to the one you would use when handling a tenon saw (fig. 17).

The hand Abrafile is a good general purpose item for the toolbox but does not take the place of hand files and rasps which it closely resembles.



17 *Adopt the posture you would use for sawing with a tenon saw when using an Abrafile in a frame—but tension the file well*



18 *For really fine work, in both wood and metal, the piercing saw is ideal. The lower one has an adjustable frame length*

19 *The very versatile Goscut tool for cutting most forms of wood, metal and plastics sheeting depending on which blade is used*

The piercing saw

Although used mainly by jewellers and pattern cutting engineers, the *piercing saw* (fig. 18) is ideal for cutting metal and other hard, fine materials. The frames used for tensioning the blade have a cutting depth of between 70mm and 90mm. Although available in non-adjustable and adjustable forms, the latter has the advantage of being able to accommodate some broken blades so longer blade life is possible. The number of teeth per 25mm ranges between 32 and 100 with blade widths from 0.89mm to 0.43mm, in thicknesses from 0.43mm to 0.15mm. Very much finer blades are available.

The Goscut tool

Falling somewhere between the description of metal shears and scissors, the Goscut (fig. 19) is useful in many areas of DIY work. Among the materials it is capable of cutting are plastic laminates, hardboards, lino tiles, aluminium up to 1.6mm thick, copper and mild steel up to 1mm thick.

The Goscut is held like a pair of pliers and is used from below the workpiece (fig. 20). Small sheets are held by the spare hand, but it is advisable to support medium and large sheets firmly before attempting to make a cut.

The tool has three interchangeable colour-coded blades. The red one is used for general purpose cutting of plastic laminates and other 'soft' materials. Yellow is for sheet metals. The blue one is for cutting circles and curves of small radius, usually in plastic laminates and hardboard. It is advisable to wear protective gloves with this tool, particularly when cutting sheet metal and plastics.

20 *To offer up the correct cutting angle, the Goscut has to be used from below the workpiece so take care to support the sheet well*

Decorative shelves

Practise cutting awkward shapes by making these decorative shelves in plywood. They will take kitchenware, books or ornaments

These shelves are both decorative and practical. They are quite easy to make, and the shapes you will need to cut out involve most of the techniques involved in cutting curves and piercing holes as described.

The material used for all the parts is 6mm multi-ply. You should use a good grade of ply, as some of the cheaper grades with only three plys will not be strong enough and will be prone to split when nailed. All the pieces can be cut from half a standard sheet—that is a piece of 1220mm square.

Mark out each piece carefully. For the back and sides, mark out a rectangle first. Follow the grid plans (overleaf) to mark the curves, first on to a template, then on to the wood.

Cut out all the parts using a panel saw or circular saw for the straight lines, and a fretsaw, coping saw or jigsaw for the curves. You can use the same saw to cut the slots for the shelves and for the pegs, but as these are quite fine, you may find it easier to use a trimming knife and a chisel.

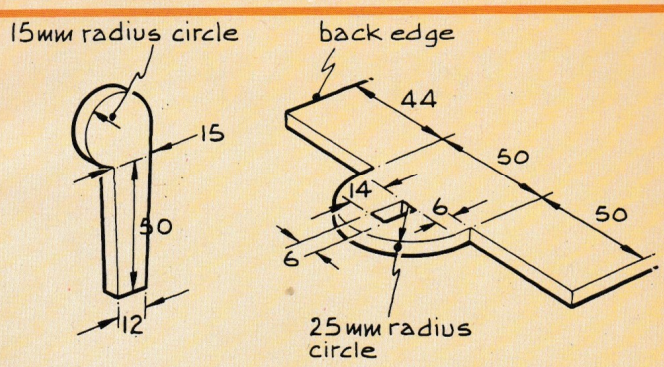
When you have cut out all the parts, assemble the sides and the shelves, gluing them together as you go. Fit the backboard with pins and PVA adhesive, taking care not to split the wood with the pins.

Finally, apply stain and lacquer or if you prefer you can paint the shelves to match the room or even add decorative transfers if used in a child's room.

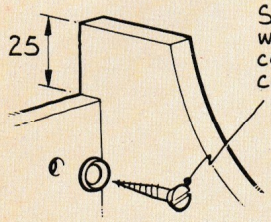
Cutting list
All sizes are in millimetres

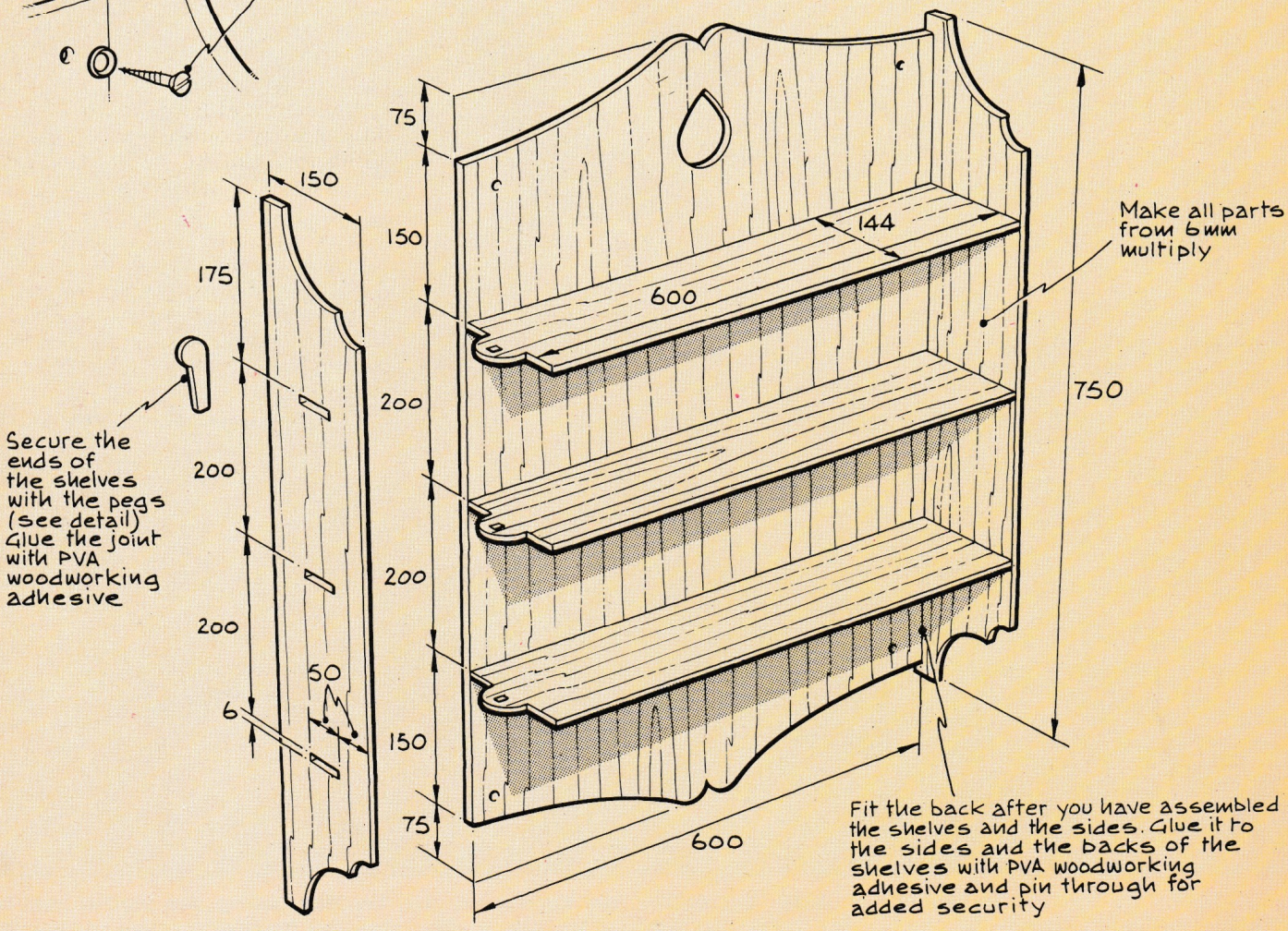
Part	Material	No.	Size
Backboard	6mm birch faced multiply	1	850mm × 600mm
Sides	6mm birch faced multiply	2	750mm × 150mm
Shelves	6mm birch faced multiply	3	670mm × 144mm
Pegs	6mm birch faced multiply	6	80mm × 30mm (from offcuts)

Additional materials: PVA woodworking adhesive, 25mm panel pins, 38mm no. 8 (4.2mm) countersunk woodscrews, screw cup washers.
Finish: Woodstain followed by polyurethane or melamine lacquer or primer, undercoat and gloss paint.

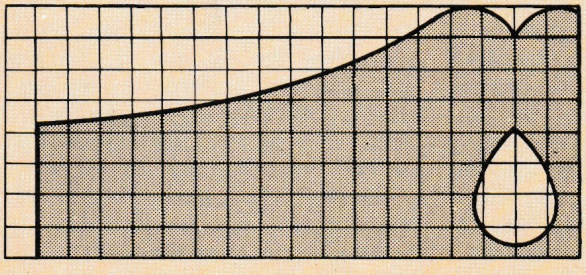


Peg and shelf tenon details

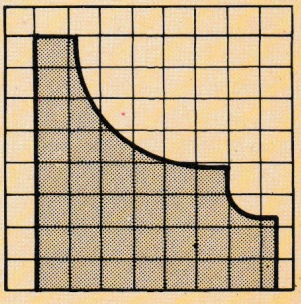



75
150
175
200
200
200
150
75
150
600
144
600
750
Make all parts from 6mm multiply
Secure the ends of the shelves with the pegs (see detail) Glue the joint with PVA woodworking adhesive
50
6
Fit the back after you have assembled the shelves and the sides. Glue it to the sides and the backs of the shelves with PVA woodworking adhesive and pin through for added security

Marking out the curves



Some of the curves are simple circles which you can mark out with a pair of compasses. For the curves shown here, mark out a piece of card with 20mm squares. Use the squares on the drawing to transfer the curves onto the cardboard. Cut this out and use it as a template to mark out the boards. The curve on the left is for top and bottom of the backboard - omit the teardrop for the bottom. The curve on the right is for the sides



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Where to buy it—UK

Child's bedroom Pages 565-571
Carpet tiles for rug—Nice 'n Easy by Illingworth carpets—tape and hessian from branches of John Lewis or Debenhams

Laying stair carpets Pages 572-577
Latex compound, 'Invisifit' gripping strips, carpet staple gun and tape from Copydex Ltd., 1 Torquay St., London W2

Revolving cabinet Pages 578-581
HANDI-board and HANDI-plank by Berman Bros. Ltd. available in a variety of sizes and finishes from branches of Fobel Ltd. Contact Fobel Stockist Information, Hyde House, Colindale, London NW9 6LG

Saws with special uses Pages 586-592
Saws from: James Neill (Sheffield) Ltd., Napier St., Sheffield, S11 8HB; A. Meyer Ltd., 9-11 Gleneldon Rd., PO Box 562, London SW16 2AU; Abrasive Tools Ltd., Abrafile Works, Colne Rd., Twickenham, Middx.

Acknowledgements

Rug Pages 570-571
Tin boxes used as draughts from DOMUS, Fortis Green Rd., London N10

Stair carpets Pages 572-577
Carpet kindly supplied by John Crossley Carpets Ltd., Dean Clough Mills, Halifax, W. Yorks. HX1 1XG. Carpet laying courtesy of Copydex Ltd., 1 Torquay St., London W2

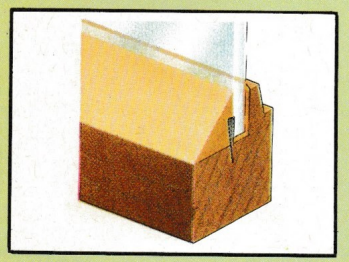
Revolving cabinet Pages 578-581
Cabinet designed and built courtesy of Berman Bros. (Panels) Ltd., Goodwin Rd., Edmonton, London N9 0EP

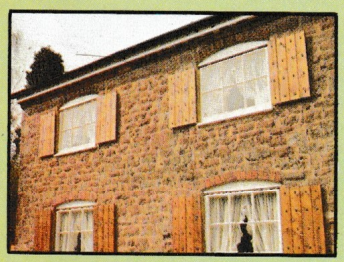
Saws Pages 586-592
Equipment and location for photography courtesy of South Lambeth Adult Education Institute, Ferndale Rd., London SW4

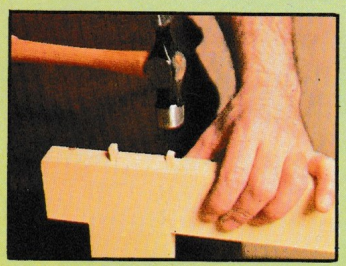
Australia

Carpentry course 11
Saws with special uses, p. 590
Your local supplier will be able to order a Flexi-Saw, Piercing Saw and Goscut Tool if they do not have them in stock.

In next week's issue







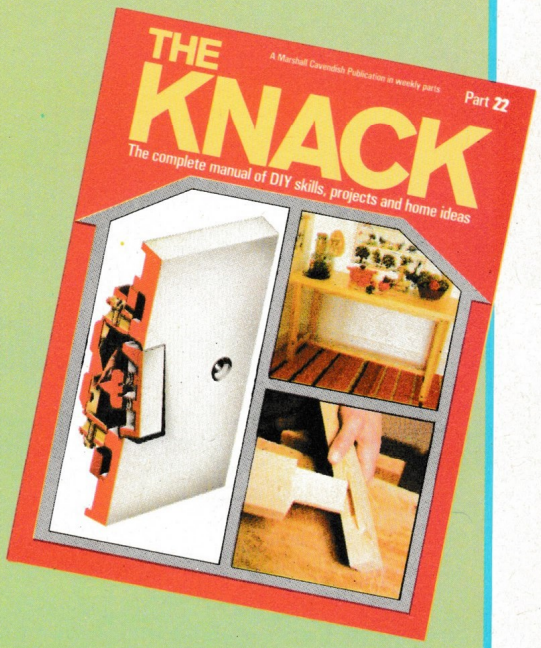
Exterior colour treatments: Having the right colour scheme does wonders for your house's appearance and may also add to its value. We show you a variety of different treatments which have been used on the outside of a selection of houses

Reglazing a window: A broken window is dangerous as well as inconvenient. Repairs and renovations shows how to replace a damaged pane with the minimum of difficulty

A pine table: Our main project features a table which is cheap to build, yet sturdy and substantial. The varnished pine finish and timber top give it a rustic look which is ideal for the kitchen or breakfast room

Mortise and tenon joints: The strongest of all the traditional woodworking joints, these can be found in almost any wooden door or window frame. We show the main variations and how to make them in step-by-step detail

Lights and light switches: Part 4 of the Home Electrics course takes you through light switch installation and how to modify an existing system to suit your own needs. Included are a dimmer and a two-way switch


THE KNACK
A Marshall Cavendish Publication in weekly parts
Part 22
The complete manual of DIY skills, projects and home ideas

Backgammon Rug

Many board games have designs which look interesting and attractive when they are not being used for play. Such games make good and unusual designs for rugs—and you can use them to play on as well.

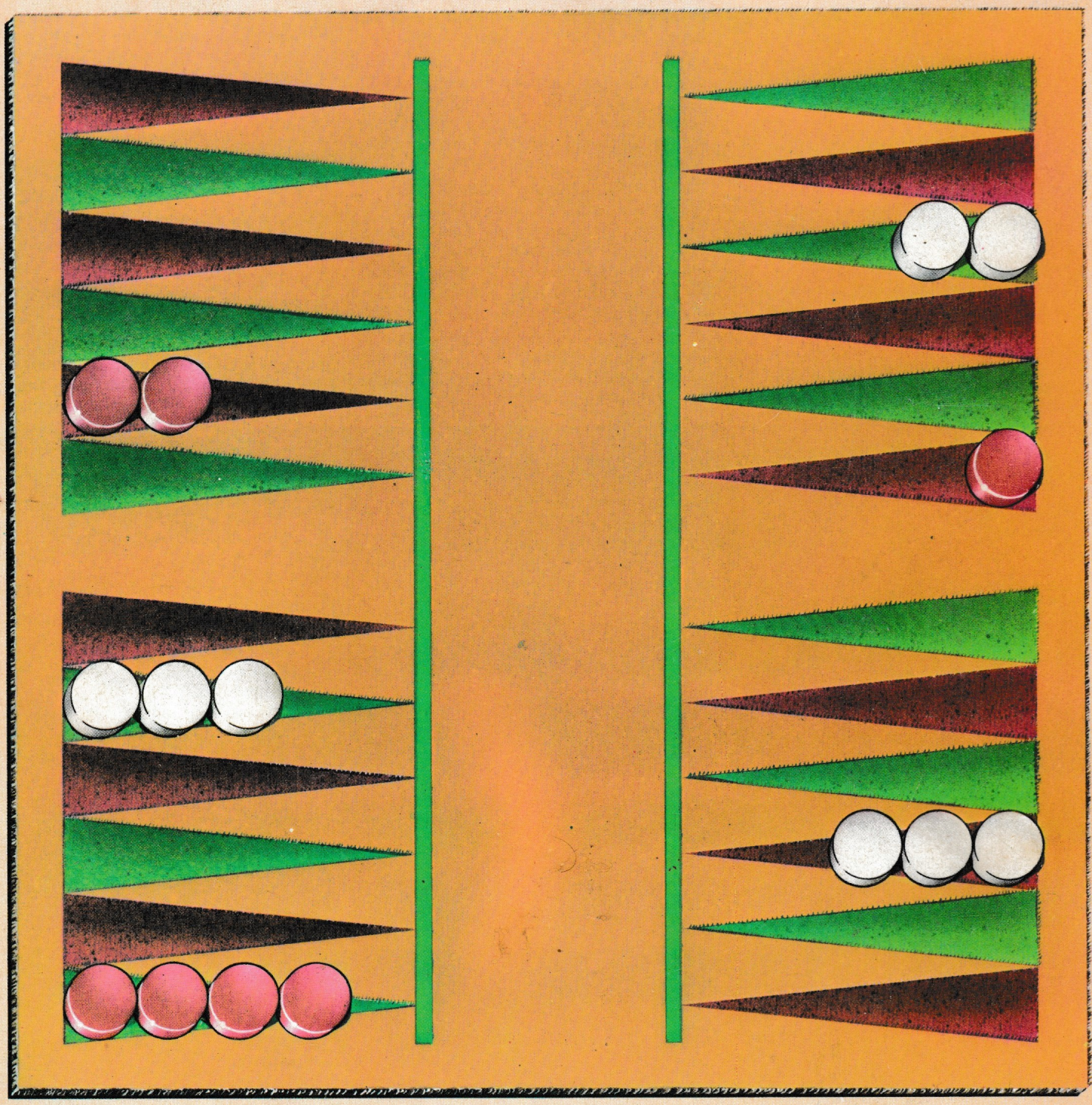
Backgammon is an example of a popular game with a board which has an interesting geometric pattern. This is particularly easy to copy for a rug, and there are various way you can make it.

One possibility is to use the design as a basis for a knotted rug. Copy the design on to the backing canvas and follow this in different coloured yarns.

Alternatively, you can copy the design on hessian and make a rag rug as shown on page 232.

Yet a third possibility is to cut the shapes from carpet offcuts or from carpet tiles and join these on a hessian backing as for the chessboard on page 570.

You can make playing pieces from wooden discs, small tins or coffee jar lids painted in two colours. Make sure that your pieces are in scale with the triangles on your rug and that the rug is not too big overall.



Bernard Fallon